WANDER DE OLIVEIRA VILLALBA

AVALIAÇÃO DO COMPROMETIMENTO PULMONAR EM PACIENTES COM ESCLERODERMIA POR MEIO DO TESTE DA CAMINHADA DE SEIS MINUTOS

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Tese de Doutorado apresentada à Pós-Graduação da Faculdade de Ciências Médicas da Universidade Estadual de Campinas para obtenção do título de Doutor em Clínica Médica, área de concentração em Clínica Médica.

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(Charles Chaplin)

PÁG.

CVF	Capacidade Vital Forçada
DPR	Doença Pulmonar Restritiva
ES	Esclerose Sistêmica
FAV	Opacidade tipo faveolamento
FI	Fibrose Idiopática
FPI	Fibrose Pulmonar Idiopática
HAP	Hipertensão Arterial Pulmonar
NYHA	New York Heart Academy
PASP	Pressão Arterial Sistólica Pulmonar
RET	Opacidade tipo reticulado
SpO_2	Saturação de pulso de Oxigênio
TC	Tomografia computadorizada
TCAR	Tomografia computadorizada de alta resolução
TC6	Teste de caminhada de 6 minutos
VF	Opacidade em vidro fosco
VEF_1	Volume expiratório forçado no 1º segundo
VO2	consumo de oxigênio
ΔSat	Delta de saturação – diferença da saturação entre o início e o final do TC6

PÁG.

RESUMO

INTRODUÇÃO - O envolvimento pulmonar é a principal causa de morte relacionada a Esclerose Sistêmica (ES). Um teste simples para avaliar a capacidade de exercício é o teste da caminhada de 6 minutos (TC6), e a distância percorrida é usada como desfecho primário em experimentos clínicos. A variação da saturação da hemoglobina (Δ Sat) durante o TC6 é preditiva de mortalidade nos pacientes com Hipertensão Arterial Pulmonar (HAP). O objetivo deste trabalho foi avaliar a distância percorrida e a queda na saturação (Δ Sat), no TC6 em pacientes com ES e estabelecer associações entre os resultados do TC6 com outras variáveis clínicas.

MÉTODOS – Foram avaliados 110 pacientes com ES. A variação da saturação foi determinada pela diferença entre a saturação de repouso e a saturação ao final dos seis minutos. Foram consideradas como dessaturação variações iguais ou maiores que 4 pontos percentuais. Os dados clínicos e demográficos foram coletados. Todos os pacientes foram submetidos a radiograma de tórax, tomografia computadorizada de alta resolução, teste de função pulmonar, ecocardiograma e pesquisa de marcadores imunológicos no sangue (Scl70 e FAN).

RESULTADOS – As variáveis que se associaram com uma distância da caminhada < 400m ($p < 0,05$) foram a idade, índice de dispnéia, fibrose no radiograma, pressão arterial pulmonar sistólica > 30 mm Hg e a dessaturação; as variáveis associadas com o Δ Sat ($p < 0,05$) foram a idade, anti ScL 70 positivo, índice de dispnéia, fibrose no radiograma de tórax, CVF < 80%, Pressão sistólica da artéria pulmonar > 30 mm Hg e o escore de opacidade reticular e vidro fosco na tomografia computadorizada. Na análise de regressão logística multivariada, três variáveis foram significativas quando testadas com a distância percorrida: idade, raça e dispnéia; e quatro variáveis foram significativas quando testadas com Δ Sat: idade, índice de dispnéia, anti Scl 70 positivo e CVF < 80%.

CONCLUSÃO – A dessaturação durante o TC6 fornece informação adicional a respeito da doença pulmonar em pacientes com ES.

ABSTRACT

Six minute walk test evaluation of pulmonary involvement in scleroderma patients

Pulmonary involvement is the leading cause of systemic sclerosis (SSc) related deaths. A simple test to evaluate exercise capacity is the 6-minute walk test (6MWT), and the walk distance is increasingly used as a primary outcome in clinical trials. Hemoglobin desaturation during a 6MWT is predictive of mortality in patients with primary pulmonary hipertension.

Objectives: To evaluate the walk distance and oxygen desaturation (Δsat) during the 6MWT in patients with SSc and to establish correlations between the 6MWT results and other clinical variables.

Methods: This study analysed 110 SSc patients who underwent 6MWT. Δsat was defined as a decrease of 4 or more points in saturation between the resting point and the end of the test. Clinical and demographic data was collected. All the patients underwent radiological evaluations (X-rays and HRCT), had pulmonary function tests and echocardiograms performed, and the presence of autoantibodies determined.

Results: The variables associated with a walk distance < 400 m ($p<0.05$) were age, dyspnea index, fibrosis on X-ray, PASP ≥ 30 mm Hg, desaturation; the variables associated with Δsat ($p<0.05$) were age, positive anti-Scl 70, dyspnea index, fibrosis on X-ray, FVC < 80%, PASP ≥ 30 mm Hg, ground-glass or reticular opacities on HRCT. In the multivariate logistic regression analysis, 3 variables were significant when tested with walk distance: age, race and dyspnea index; and 4 variables were significant when tested with Δsat: age, dyspnea index, positive anti-Scl-70 and FVC< 80%. (91)

Conclusions: Desaturation during a 6MWT provides additional information regarding severity of disease in scleroderma patients with pulmonary manifestations.

1- INTRODUÇÃO

Relatada por Hipócrates como causa de mumificação em vida, foi apenas no século XVIII que a esclerodermia passou a ser mais bem caracterizada como entidade clínica, a partir da descrição de Carlos Curzio, em Nápoles (1753). O termo esclerodermia, derivado das raizes gregas skleros = duro e dermis = pele, passou a ser utilizado a partir de 1832. Durante o século XIX, a ocorrência da doença visceral foi considerada como associação fortuita, apesar da observação de que os pacientes esclerodérmicos morriam mais cedo que a população geral. Após a descrição de fibrose envolvendo rins, pulmões e trato gastrintestinal na necropsia de cinco pacientes esclerodérmicos (1924), o envolvimento visceral passou a ser encarado como importante manifestação clínica da doença. A partir do reconhecimento de que a esclerodermia era a manifestação cutânea de uma doença generalizada, foi proposta a denominação "esclerose sistêmica progressiva"(1945). Em 1988, junto com a proposição da atual classificação, foi sugerida a supressão do termo progressiva, pelo fato de a doença nem sempre apresentar caráter progressivo e pela carga emocional que representava para os afetados; surgiu, assim, a denominação "esclerose sistêmica". (Marques Neto JF e Sampaio-Barros PD, 2001)

A etiologia e a patogenia da Esclerose Sistêmica (ES) ainda não são compreendidas completamente

A ES, forma generalizada da esclerodermia, é uma doença inflamatória crônica do tecido conjuntivo caracterizada por fibrose acometendo pele e vísceras. Encontram-se na ES três características de processos patofisiológicos distintos: autoimunidade celular e humoral, doença vascular, e fibrose. Doença vascular, funcional e estrutural, é freqüentemente a manifestação mais precoce da ES e pode estar associada a outras manifestações. As anormalidades imunes podem também ocorrer precocemente no curso da ES. A fibrose, caracterizada pelo acúmulo excessivo do colágeno e de componentes da matriz extracelular, é geralmente uma característica tardia. Fatores genéticos podem ter um papel na patogenia da doença afetando a suscetibilidade do hospedeiro ou modificando a apresentação e os danos clínicos dos órgãos.

É uma doença rara, de prevalência que varia entre 30 e 290 casos por milhão de habitantes. Apresenta predomínio do sexo feminino que pode aumentar para 15:1, quando considerada a faixa etária correspondente ao período fértil da mulher (15 a 50 anos), e

diminuir a 2:1 em pacientes com início da doença acima de 50 anos de idade. A sobrevida é diminuída significativamente nos pacientes com idade mais avançada. São fatores de pior prognósticos: o envolvimento difuso da pele, o sexo masculino, a raça negra e a existência de doença visceral. A ES é considerada um desafio terapêutico dentro do espectro das doenças difusas do tecido conjuntivo. Nestas duas últimas décadas, consideráveis esforços tem sido empreendidos no sentido de uma melhor elucidação de sua complexa fisiopatologia, a fim de obter um melhor controle da doença.

O envolvimento da pele na ES deve ser aferido periodicamente por meio dos escores cutâneos, que permitem avaliar a extensão do acometimento cutâneo. (Mayes MD, 2003).

Um grau variado de envolvimento dos pulmões, coração e/ou rins costuma ocorrer em um número significativo de pacientes esclerodérmicos. Estudos mostram que os acometimentos viscerais nos pacientes esclerodérmicos costumam aparecer nos primeiros cinco anos da doença, sendo 70% nos rins, 60-70% no coração e 50-60% nos pulmões. Portanto é imprescindível o diagnóstico precoce do envolvimento visceral, a fim de se tentar melhorar o prognóstico destes pacientes. O acometimento pulmonar da ES é bastante diversificado, podendo aparecer como fibrose intersticial, micronódulos, fibrose pleural, pneumonias aspirativas e hipertensão pulmonar. A fibrose intersticial é a forma mais comum de envolvimento pulmonar e sua prevalência varia de 25% a 90% – variabilidade esta que depende do perfil étnico da população estudada, assim como dos métodos utilizados para a sua detecção. Os auto-anticorpos apresentados pelo paciente se associam à presença de fibrose intersticial, sendo ela mais comum nos portadores de anticorpo anti Scl-70 (ou anti DNA topoisomerase-1) e mais rara nos portadores de anticorpos anticentrômero. Sua prevalência é também ligeiramente maior na forma difusa da doença quando comparada com a forma limitada. Estudos mostram a presença de fibrose intersticial em 40% dos pacientes com forma difusa contra 23% na forma limitada, quando se utiliza a espirometria com defeito restritivo como elemento marcador de seu aparecimento. (Simeon CP e cols, 1997; Leroy EC e cols, 1988; Bolster MB e cols, 1993).

O envolvimento pulmonar pela ES tende a surgir, em geral, dentro dos três primeiros anos do início da doença e a sua presença aumenta a morbimortalidade nestes pacientes. Por esta razão, postula-se que portadores de esclerodermia devam ser acompanhados anualmente com tomografia de alta resolução e/ou espirometria nos primeiros anos de doença.

A fibrose pulmonar e a hipertensão arterial pulmonar (HAP) são as causas mais freqüentes de mortes relacionados a doença.. A doença pulmonar restritiva (DPR) na ES é encontrada em 50-90% dos pacientes e clinicamente se manifesta com quadro de dispnéia progressiva aos esforços, tosse, mais comumente e dor tipo pleural. Ao exame físico podem existir estertores crepitantes nas bases pulmonares e também nos casos mais graves, sinais de "*cor pulmonale*". (Bolster MB e cols, 1999; Morelli S e cols, 1997; Williamson DJ e cols, 1996).

Os pacientes com ES e envolvimento pulmonar podem apresentar uma redução significativa na capacidade do exercício e na captação do oxigênio. O aparecimento de dispnéia e/ou a diminuição da capacidade de difusão devem levar à suspeita imediata destas complicações. A Hipertensão Aretrial Pulmonar (HAP) pode aparecer em 5-40% dos pacientes esclerodérmicos, isolada ou associada a doença pulmonar restritiva (DPR). A ecodopplercardiografia é importante para o diagnóstico e o seguimento da HAP. Os casos não tratados de hipertensão pulmonar em esclerodermia têm mau prognóstico, daí a necessidade de se manter sob vigilância estes pacientes. Na última década surgiram avanços para o tratamento da hipertensão arterial pulmonar, incluindo os medicamentos epoprostenol IV, bosentana e sildenafil VO, treprostinil SC e iloprost inalatório. À medida que novas terapias vão sendo desenvolvidas, torna-se necessária a realização de estudos clínicos das mais informativos quanto a técnicas de diagnóstico precoce de complicações. (Barbosa LSG e cols, 1981; Farber HW e cols, 2004)

Um teste simples para avaliar a capacidade de exercício é o teste da caminhada de 6 minutos (TC6). (Guyatt GH e cols, 1985).

O teste de caminhada de 6 minutos surgiu na década de 70 com o objetivo inicial de avaliar funcionalmente os portadores de doença pulmonar obstrutiva crônica.

Devido ao seu baixo custo e facilidade de execução, passou a ser posteriormente aplicado em outras situações clínicas como em portadores de cardiomiopatia dilatada. Na Insuficiência Cardíaca , o teste foi aplicado na década de 80 para avaliação funcional destes pacientes. A distância percorrida no TC6 se correlaciona de forma linear com o consumo de oxigênia (VO2) aferido diretamente pelo teste cardiopulmonar de exercício, em particular nos pacientes mais graves, tais como os pacientes em classe funcional IV da NYHA e os pacientes candidatos a transplante cardíaco, podendo, nestes casos, substituir o VO2 como marcador prognóstico e indicador do transplante. (Lipkin DP e cols, 1986; Cahalin L e cols; 1996).

Em relação ao prognóstico, a distância percorrida no teste de 6 minutos provou eficácia na avaliação da morbi-mortalidade, principalmente nos pacientes que percorreram distância inferior a 300 metros. Além disso, a distância percorrida no teste de 6 minutos superou a medida direta do VO2 pela ergometria como marcador prognóstico à curto prazo (< 6 meses), ocorrendo o inverso quando avaliado a longo prazo. (Bittner V e cols, 1993; Zugek C e cols, 2000).

A equivalência da distância percorrida no teste de 6 minutos e o VO2 aferido pela ergoespirometria levou alguns autores como Guyatt GH e cols (1985) a concluírem que nos portadores de insuficiência cardíaca o VO2 máximo é alcançado antes que pelo menos 85% da freqüência cardíaca máxima preconizada para a idade sejam atingidos, ,justificando desta forma que o TC6, considerado por muitos especialistas um teste "submáximo", substitua de forma equivalente a ergoespirometria na avaliação funcional e no acompanhamento dos pacientes com disfunção ventricular esquerda. Este aspecto tem motivado novas pesquisas e, certamente, trará, num futuro próximo, uma nova abordagem na avaliação dos cardiopatas à luz de novos conceitos sobre a fisiologia do exercício.

A dessaturação da hemoglobina, medida pelo oxímetro de pulso durante o TC6 é preditiva de mortalidade nos pacientes com hipertensão arterial pulmonar idioipática e o TC6 está sendo usado cada vez mais como desfecho primário em experimentos clínicos das novas drogas indicadas no tratamento da hipertensão pulmonar. Paccioco G e cols (2000), em seu estudo analisaram a dessaturação de oxigênio e a distância percorrida durante o TC6 para avaliar se há associação com o mortalidade em pacientes com sintomatologia

moderada de hipertensão arterial pulmonar (HAP) idiopática. Os 34 pacientes com HAP idiopática submeteram-se a um teste da caminhada de seis-minutos (TC6), no período pré tratamento e a uma avaliação hemodinâmica invasiva, para selecionar a melhor opção terapêutica. A distância média percorrida foi de 275+/-155 m e a redução na saturação de oxigênio foi de 8.4+/-4.5 pontos percentuais). Uma distância ≤ 300 m aumentam o risco de mortalidade em 2,4 vezes, e uma queda na saturação ≥ 10% aumentou o risco da mortalidade em 2,9 vezes. Somente a distância, o ΔSat, e a resistência vascular pulmonar (RVP) estiveram relacionados a mortalidade. A dessaturação de oxigênio e a distância percorrida durante o TC6, podem ser úteis para selecionar pacientes com HAP para quem o transplante é adequado. Ouros autores também utilizaram o TC6 para avaliações o risco de mortalidade. (Badesch DB e cols, 2000; Oudiz RJ e cols, 2004; Rubin LJ, 2002).

Poucos estudos foram realizados com TC6 que incluiam a dessaturação, pois a avaliação da distância é o melhor desfecho, segundo a maioria dos autores, para diagnóstico de comprometimento pulmonar.

O objetivo deste estudo foi de avaliar a dessaturação e a distância percorrida durante o TC6 nos pacientes com ES e estabelecer correlações entre os resultados do TC6 e outros exames clínicos. Nossa hipótese principal é que a dessaturação no TC6 seria pelo menos tão informativa da presença de envolvimento do pulmão quanto a diminuição na distância caminhada.

2- OBJETIVOS

1- Avaliar a distância percorrida e a dessaturação ao final dos seis minutos no TC6 em pacientes com ES.

2- Estabelecer associações entre os dois desfechos do TC6 e dados demográficos e clínicos destes pacientes.

3- Comparar a sensibilidade dos dois desfechos, distância caminhada e dessaturação, na detecção do comprometimento pulmonar na esclerodermia.

3- CASUÍSTICA, MATERIAL E MÉTODOS

Foram considerados candidatos ao estudo todos os portadores de ES acompanhados no ambulatório de esclerodermia do Hospital de Clínicas da Unicamp. Dentre estes doentes, foram selecionados 114 pacientes sem limitações motoras que impedissem a realização do TC6, com sinal de pulso adequado para realização da oximetria e que tivessem SpO2 em ar ambiente maior ou igual a 90%. Quatro pacientes destes 114 foram excluídos por apresentarem sinal de pulso inadequado ao final do TC6. A aprovação para o uso de dados dos pacientes foi obtida no Comitê de Ética em Pesquisa da Universidade.

Todos os testes (TC6) dos pacientes foram realizados pelo mesmo pesquisador (WOV) seguindo as normas já estabelecidas (American Thoracic Society, 2002). A pressão sanguínea e a frequência cardíaca foram medidas e a saturação do oxigênio (SpO2) foi determinada com um oxímetro do pulso (Nonin Medical; Plymouth, MN). A saturação foi medida em repouso e imediatamente ao final do período de 6 minutos. Todos os pacientes foram observados com cuidado durante o teste para evitar exceder seus limites de exercício. Para análise dos dados, a dessaturação (Δsat) foi definida como uma diminuição da SpO2 $\geq$ 4% do valor de base em repouso (Δsat = saturação em repouso - saturação após os 6 minutos). A queda de 4% foi validada em um estudo de hipoxemia durante o exercício máximo em atletas (Préfaut C e cols, 2000). A distância caminhada foi considerada anormal quando menor que 400 m. Todos os 110 pacientes se submeteram ao radiograma de tórax. Os testes de função pulmonar foram executados em um espirômetro ® Am 4000 PC - Anamed® spirometer. A gravidade da dispnéia foi avaliada em todos os pacientes e foi classificada de acordo com escala de capacidade funcional da New York Heart Academy (NYHA) (American Heart Association, 1994). Os exames de tomografia de alta resolução (TCAR) do tórax foram obtidos no aparelho Somaton AR, Siemens Inc e avaliados semiquantitativamente para a atenuação em vidro fosco (VF), opacidade reticular (OR) e Faveolamento (F). A pontuação dos achados tomográficos foi baseada na proposta modificada de Wechsler e cols, (1996) . Para analisar cada varredura da TCAR, os pulmões foram divididos em seis regiões. Para cada anormalidade, e em cada uma das seis regiões, um grau de acometimento foi escolhido (entre 0 e 3). A contagem total variou 0 a 18. Os ecocardiogramas com Doppler foram executados para estimar a pressão sistólica da artéria pulmonar (PSAP).

Duas variáveis dicotômicas principais foram escolhidas, Δsat ≥4% e distância caminhada < 400 m, e estas variáveis categóricas foram usadas como dependentes. Os dados categóricos foram comparados usando testes do qui-quadrado ou o teste exato do Fisher; os dados contínuos foram comparados usando o teste de Mann-Whitney. As análises foram executadas em Epi Info, versão 6.04d e SPSS, versão 6.0. Análises de regressão logística foram usadas para determinar quais informações demográficas, fisiológicas, sorológicas e radiográficas poderiam predizer a dessaturação ≥ 4 pontos percentuais ou uma distância caminhada menor que 400 metros. Testes apropriados foram usados para determinar a interação das variáveis consideradas independentes.

4- RESULTADOS

Dos 110 pacientes de ES analisados no estudo, 96 (87.3%) eram mulheres. Quanto a raça, havia 76 (69.1%) caucasóides e 34 (30.9%) não caucasóides. Para finalidades estatísticas, os pacientes foram subdivididos em um grupo > 36 anos (82 pacientes, 74.5%) e em um grupo < 36 anos (28 pacientes, 25.5%), porque 25% dos pacientes pertenceram ao primeiro quartil. Quanto ao tipo clínico de ES, 78 (70.9%) pacientes apresentaram ES limitada e 32 (29.1%) ES difusa. A análise laboratorial revelou que o anticorpo antinuclear (ANA) era positivo em 86.2% dos casos, enquanto que o anticorpo anticentrômero estava presente em 10.9%. Anti-SCL 70 foi positivo em 28 pacientes (25.5%), 16 deles (20%) com a forma limitada de ES e 12 (37%) com a forma difusa de ES.

De acordo com a classificação funcional da NYHA (American Heart Association, 1994), 91 (82.7%) pacientes estavam na classe I e 19 (de 17.3%) na classe II. A capacidade vital forçada (CVF) < 80% do previsto estava presente em 45 pacientes (42.4%). Os valores médios e suas variações expressas como % do valor previsto da CVF, da VEF1 e do VEF1/CVF foram de 88.5% (35-124), 81.5% (41-137) e 80 (70-99), respectivamente. Trinta e três pacientes (30%) mostraram opacidade reticular heterogênea no radiograma de tórax, sugestiva de fibrose pulmonar. As contagens para cada um dos padrões analisados na TCAR podem ser apreciadas na tabela 1.

Tabela 1- Características tomográficas dos pacientes estudados

TC RET	Escore ≥ 6	32,4%
	Escore <6	67,6%
TC VF	Escore ≥ 6	23%
	Escore <6	77%
TC FAV	Escore ≥ 6	11,8%
	Escore <6	88,2%

TC Ret: opacidade reticular; TC VF: opacidade em vidro fosco; TC FAV: Faveolamento

Um escore de seis pontos ou mais foi observado na opacidade em vidro fosco em 23% dos pacientes, na opacidade reticular, em 32.4% e no faveolamento, em 11.8% dos pacientes. Os resultados do ecocardiograma com Doppler revelaram que a PSAP era > 30 mmHg em 32 (29.1%) pacientes. As duas variáveis usadas na análise estatística como dependentes, o Δsat ≥ 4% e a distância da caminhada < 400 m, estavam presentes em 31 (29.5%) e em 32 (28.2%) pacientes, respectivamente. Os resultados do TC6 são mostrados na tabela 2.

Tabela 2- Resultados do TC6 (N=110)

Distância percorrida (m) *	450 (150/660)
Pacientes com distância caminhada < 400m	31 (28%)
Pacientes com Δsat ≥4%	31 (28%)
Média de Δsat entre pacientes com Δsat ≥ 4%	6.87%
Média de Δsat entre pacientes com Δsat < 4%	0.57%

*Valores da média,máximos e mínimos

ΔSat: Saturação de O2 em repouso –Saturação de O2 ao final dos 6 minutos

Os resultados da análise estatística referentes ao TC6 são indicados na tabela 3.

Tabela 3- TC6 – Análise univariada: variáveis associadas com distância percorrida e ΔSat

Variáveis	**Distância percorrida (*p*)**	**ΔSat (*p*)**
Sexo	0.34	1.00
Raça	0.72	0.34
Idade	**0.008**	**0.02**
Duração da doença	0.84	0.95
Variante clinica	0.82	0.65
Anticorpo Anti-Nuclear	0.11	0.21
Anti-Scl-70	0.20	**< 0.001**
Dispnéia	**0.003**	**< 0.001**
Raio-X (Fibrose)	**0.05**	**< 0.001**
CVF < 80% do valor previsto	0.15	**< 0.001**
TC – Vidro Fosco	0.88	**0.02**
TC – Opacidades Reticulares	0.49	**< 0.001**
TC - Faveolamento	0.30	0.31
Pressão Sistólica na Artéria Pulmonar	**0.036**	**0.01**
ΔSat	**< 0.001**	
Distância percorrida		**< 0.001**

Estatisticamente significante quando $p \leq 0.05$ (valores significativos destacados em negrito)

TC: tomografia computadorizada; ΔSat: saturação de hemoglobina com O2 em repouso - saturação de hemoglobina com O2 ao final dos seis minutos

Esta tabela mostra que as variáveis que apresentaram associação estatística com a distância da caminhada < 400 m foram idade, índice do dispnéia, fibrose no raio X de tórax, PSAP > 30 mmhg e Δsat ≥ 4%. As variáveis que apresentaram associação estatística com Δsat foram a idade, a presença do anti SCL70, o índice de dispnéia, fibrose no raio X de tórax, CVF < 80% do valor predito, PSAP > 30 mmhg, presença de opacidade em VF e opacidade reticular na TCAR; as opacidades em faveolamento não apresentaram nenhuma associação com Δsat.

Na análise da regressão logística multivariada, três variáveis (idade, raça e dispnéia) apresentaram significado estatístico quando testadas com a distância caminhada, e quatro variáveis (idade, índice de dispnéia, Scl-70 positivo e CVF < 80% do valor previsto) apresentaram significado estatístico quando testados com Δsat (tabela 4 e 5).

Tabela 4- Análise por regressão logística multi-variada: previsão da chance de percorrer distância < 400 m

Idade (anos)	Dispnéia	Raça	Probabilidade
< 36	I	C	3.2 %
		NC	8.7 %
	II	C	17.3 %
		NC	37.4 %
≥ 36	I	C	20.6 %
		NC	42.6 %
	II	C	61.9 %
		NC	82.3 %

C: caucasóide; NC: não caucasóide

Tabela 5- Análise por regressão logística multi-variada: previsão da chance de $\Delta SatO_2 \geq 4\%$

Dispnéia	Idade (anos)	Anti-Scl-70	CVF	Probabilidade
I	< 36	Negativo	≥ 80	1.2 %
			< 80	6.0 %
		Positivo	≥ 80	6.1 %
			< 80	25.4 %
	≥ 36	Negativo	≥ 80	8.8 %
			< 80	33.7 %
		Positivo	≥ 80	33.8 %
			< 80	72.9 %
II	< 36	Negativo	≥ 80	20.5 %
			< 80	57.7 %
		Positivo	≥80	57.8 %
			< 80	87.9 %
	≥ 36	Negativo	≥ 80	67.1 %
			< 80	91.5 %
		Positivo	≥ 80	91.5 %
			< 80	98.3 %

5- DISCUSSÃO

O teste da caminhada dos seis minutos é simples e barato, requer poucos profissionais para a sua realização e pode ser aplicado em ambulatórios.

Uma similaridade inesperada foi demonstrada entre a captação de oxigênio no teste cardiopulmonar de exercício e o TC6 por Trooster T e cols (2002) que analisaram as respostas fisiológicas do TC6 em pacientes com doença pulmonar obstrutiva crônica. O consumo de oxigênio elevado durante o TC6 é atribuído a uma quantidade maior de massa muscular em atividade quando comparado com o teste incremental em bicicleta (Miles DS e cols, 1980). A produção de gás carbônico e o volume-minuto foram significativamente mais baixos no TC6. Estes achados indicam que o TC6 provoca alta, embora submáxima, demanda metabólica e cardiovascular, mas uma sobrecarga ventilatória menor.

Troosters T e cols, (2002) discutem em seu estudo que a velocidade durante a marcha pode ser controlada pelo paciente para conseguir uma taxa de trabalho e um consumo de oxigênio sustentado durante o TC6. Se esta hipótese é verdadeira, as informações fisiológicas obtidas pelo teste são altamente relevantes, já que elas devem refletir a resposta integrada de sistemas orgânicos envolvidos na captação, transporte e utilização de oxigênio, que permite um grau elevado de exercício sustentável que envolve o corpo todo.

As respostas fisiológicas ao caminhar rápido em pacientes com distúrbios de trocas gasosas são ainda pouco claras. Vinte porcento dos pacientes no estudo de Troosters T e cols (2002) mostraram maior queda da PaO2 durante a caminhada do que durante o teste incremental em bicicleta e esta observação corrobora o uso do TC6 como um meio valioso de se avaliar a dessaturação da oxihemoglobina induzida pelo exercício.

Em pacientes com hipertensão pulmonar o TC6 foi reconhecido como elemento forte e independente na previsão de mortalidade (Badesch DB e cols, 2000; Oudiz RJ e cols, 2004; Rubin LJ e cols, 2002). No entanto, em todos estes estudos o desfecho avaliado do TC6 é a distância caminhada e nenhuma referência é feita à dessaturação.

Na fibrose pulmonar idiopática, Eaton T e cols (2005) demonstraram que a distância caminhada no TC6 é um valor altamente reprodutível e tem pouca chance de melhorar com testes repetidos.

Valores normais da distância caminhada em seis minutos não estão disponíveis. Empiricamente, Redelmeir DA e cols (1997), sugerem que 700m deve ser a distância normal esperada no TC6, mas eles não especificam se este valor se aplica a todas as idades. Troosters T e cols. (1999) avaliaram 51 indivíduos saudáveis entre 50 e 85 anos com o TC6, sem nenhuma história prévia de doença crônica que pudesse interferir na sua capacidade de exercício. Na média, estes indivíduos caminharam 631 ± 93m. Correlações significativas com a altura e com a idade foram encontradas. O TC6 não se associou com a pontuação num questionário de atividades da vida diária nem ao hábito tabágico dos participantes, já que as espirometrias eram todas normais. Na regressão logística multivariada, idade, altura, peso e sexo foram mantidas como variáveis significativamente associadas e este modelo foi capaz de explicar 66% da variabilidade nas distâncias caminhadas no TC6.

É bastante comum que pacientes com fibrose pulmonar idiopática e/ou hipertensão pulmonar tenham saturação de hemoglobina pelo oxigênio normal em repouso. No entanto, durante exercícios submáximos, alguns deles podem apresentar dessaturação (Denton CP e cols, 1997). As características demográficas, clínicas, funcionais e radiológicas que estão significantemente associadas a este fenômeno não estão ainda bem estabelecidas.

Uma característica fundamental da fisiopatogenia da fibrose pulmonar idiopática é o prejuízo das trocas gasosas que aparece ou se acentua com a atividade física. A queda da PaO2 e o alargamento do gradiente alvéolo-arterial de oxigênio nestes pacientes estão associados a várias anormalidades, tais como disparidades na relação ventilação-perfusão, limitação da difusão do oxigênio, baixo PO2 venoso misto e hipertensão pulmonar. A PaO2 ao final de exercício máximo e ao final de exercício submáximo constante constituem importantes elementos na avaliação da gravidade da doença na fibrose pulmonar idiopática e estas observações tornam plausível a hipótese de que a queda da saturação durante o TC6 pode ser uma medida significativa da gravidade da doença em pacientes com infiltrações intersticiais pulmonares difusas(Augusti AG e cols, 1988; Eaton T e cols, 2005; Lama VN e cols, 2003; Miki K e cols, 2003).

Lama VN e cols, (2003) demonstraram que pacientes com pneumonia intersticial usual que dessaturavam durante o TC6 quatro ou mais pontos percentuais tinham um risco mais de quatro vezes maior de morrer durante o seguimento do que aqueles que não apresentavam queda na saturação.

Em um outro estudo de 41 pacientes com fibrose pulmonar idiopática a hipoxemia induzida pelo exercício, avaliada pelo relação ΔPaO2/ΔVO2 durante o teste cardiopulmonar de exercício, estava altamente correlacionada com a sobrevida (Miki K e cols, 2003). No entanto, o teste cardiopulmonar de exercício tem sido pouco utilizado para investigar pacientes com fibrose pulmonar idiopática, provavelmente pelo seu alto custo e pequena disponibilidade.

No estudo de Eaton T e cols (2005) o valor da dessaturação na oximetria de pulso foi considerado não reprodutível, em razão de uma variabilidade muito grande em medidas pareadas. Mas os autores não utilizaram esta variável como uma variável categórica; ao invés desta estratégia, os valores absolutos da dessaturação foram computados em dois TC6. Nós acreditamos que a informação importante aqui é fato de que ocorre dessaturação significativa em alguns pacientes, situação nunca observada em indivíduos normais durante exercícios submáximos. Certamente é esperado que o valor absoluto da dessaturação varie, por se tratar de diferentes situações de homeostasia em diferentes momentos, em indivíduos com anormalidades das trocas gasosas.

Nós hipotetizamos que a dessaturação durante o TC6 forneceria a informação adicional a respeito da gravidade da doença nos pacientes com o Esclerodermia com manifestações pulmonares (fibrose intersticial e/ou hipertensão pulmonar).

Em nosso estudo escolhemos 400 m como o limite de distância mínima de normalidade no TC6 para compensar diferenças de idade, altura, peso, sexo e de força muscular. Mesmo assim, a idade apresentou uma associação significativa com a distância menor que 400m no TC6, embora a idade média dos pacientes no estudo fosse 45.5 anos. Uma outra associação importante com a distância caminhada neste estudo foi a classe funcional da NYHA dos pacientes. Nós escolhemos usar a classificação de incapacidade da NYHA, modificada para os pacientes com hipertensão arterial pulmonar, pela coexistência

de doença parenquimatosa e vascular nos pacientes com esclerodermia. Os pacientes da classe II, aqueles que estão confortáveis no repouso mas mostram fadiga, palpitação e dispnéia durante a atividade física moderada, tiveram uma probabilidade muito maior de caminhar distâncias menores de 400m no TC6. Neste estudo não houve nenhum paciente na classe III ou IV. Nossos resultados concordam com aqueles obtidos por Miyamoto S e cols, (2000), que demonstraram nos pacientes com hipertensão arterial pulmonar idiopática boa correlação entre a distância caminhada e a classe funcional (NYHA).

Nós encontramos uma associação entre a evidência da fibrose no radiograma de tórax e a distância caminhada < que 400m (p=0.05). Outro achado deste nosso estudo é que não havia nenhuma relação entre a distância da caminhada < 400m e as características investigadas na TCAR. É sabido que a TCAR é mais sensível para detectar alterações precoces de doenças pulmonares intersticiais (Epler GR e cols, 1978). A maioria de nossos achados de TCAR contabilizou escores mais baixos (< 6), o que significa que as alterações encontradas nestes pacientes eram menos graves. A visualização de fibrose no radiograma de tórax ocorre provavelmente em doença pulmonar mais grave e este fato deve explicar a falta da associação da distância caminhada com os achados das varreduras da TCAR, provavelmente em consequência da menor sensibilidade do radiograma de tórax para lesões leves. De acordo com Desai SR e cols (2004) a doença intersticial no pulmão de pacientes com ES é menos extensa, menos grosseira e caracterizada por uma proporção maior de opacidade em vidro-fosco do que nos pacientes com fibrose pulmonar idiopática (FPI); as características do CT na doença pulmonar em pacientes com ES assemelham-se aquelas dos pacientes com pneumonia intersticial idiopática não específica.

Os relatos da prevalência de HAP em pacientes com esclerodermia apresentam grande variação de valores (5 a 50%), dependendo da metodologia usada e do valor limite de PSAP considerado para o diagnóstico (Badesch DB e cols, 2000; Barbosa LSG e cols, 1981; Battle RW e cols, 1996; Denton CP e cols, 1997; Morelli S e cols, 2000; Simeon CP e cols, 1997; MacGregor AJ e cols, 2001; Mukerjee D e cols, 2003; Williamson DJ e cols, 1996; McLaughlin VV e cols, 2005). A HAP está freqüentemente associada com o fibrose pulmonar nos pacientes com ES difusa, mas pode apresentar-se como uma doença isolada em ES limitada. A cateterização dos pacientes com ES limitada mostra freqüentemente uma

arteriopatia pulmonar (Battle RW e cols, 1996). Embora apenas 10 a 15% dos pacientes com manifestações típicas de ES apresentem HAP até 80% deles podem ter sintomas de arteriopatia em exames antomopatológicos. O ecocardiograma com doppler é um exame confiável e fornece medidas reprodutíveis para avaliar a pressão sistólica da artéria pulmonar (Azevedo AB e cols, 2005; Denton CP e cols, 1997; MacGregor AJ e cols, 2001; Mukerjee D e cols, 2003; Sitbon O e cols, 2002). Um estudo recente avalia o ecocardiograma com doppler como teste de seleção para o cateterização do coração direito em 137 pacientes com ES e ele mostrou uma correlação boa entre PSAP > 45 mmHg no ecocardiograma e a presença HAP na cateterização do coração (Mukerjee D e cols, 2004). Trinta por cento dos 110 pacientes com escleroderma descritos aqui tiveram uma pressão sistólica arterial pulmonar de 30 mmHg ou mais no exame de ecocardiograma (33% dos pacientes com a forma limitada da doença e 22% dos pacientes com o variante difusa) e mostraram uma distância significativamente menor da caminhada no TC6. Estes resultados estão em concordância com os achados dos estudos que avaliaram TC6 nos pacientes com hipertensão arterial pulmonar de outras etiologias (Rubin LJ e cols, 2002; Myamoto S e cols, 2000). O valor mínimo de 30 mmHg para afirmar a presença de HAP (Battle RW e cols, 1996) é baixo e se mostrou suficientemente capaz em nosso estudo para discriminar entre os pacientes que andaram mais de 400m e aqueles que não conseguiram andar mais que esse valor.

É muito comum pacientes com fibrose pulmonar e/ou HAP apresentarem em repouso uma SpO2 normal. Entretanto, durante o exercício submáximo alguns deles dessaturam (Hallstrand TS e cols, 2005). As características demográficas, funcionais e radiográficas que estão associadas significativamente com esta queda de saturação de oxigênio não estão bem estabelecidas, especialmente nos pacientes com escleroderma.

Uma característica da patofisiologia da fibrose pulmonar idiopática é o comprometimento das trocas gasosas que piora com exercício (Augusti AG e cols, 1988; King TE e cols, 2001; King TE e cols, 2001). Esta dessaturação durante o exercício máximo e submáximo é importante para medir a gravidade do acometimento pulmonar na FPI e estas observações permitem que nós levantemos a hipótese de que a saturação diminuida durante o andar em ritmo individual pode aferir o nível de comprometimento

pulmonar nos pacientes com esclerodermia. Lama VN e cols, (2003) demonstraram que pacientes com pneumonia intersticial que dessaturam durante um TC6 apresentaram um risco maior de morrer em relação aqueles que não dessaturaram. Em um outro estudo de 41 pacientes com FPI, a hipoxemia induzida pelo exercício foi testada por meio do ΔPaO2/ΔVO2 e correlacionou-se fortemente com a sobrevida (Miki K e cols, 2003). Entretanto, o teste cardiopulmonar de exercício é pouco usado para avaliar pacientes com FPI, provavelmente por causa do custo e a disponibilidade limitada desta modalidade diagnóstica(Miki K e cols, 2003; Mapel DW e cols, 1996).

No estudo por Eaton T e cols (2005) o valor absoluto da dessaturação da hemoglobina avaliada pelo oxímetro de pulso foi irreprodutível, com variação inaceitável da medida. Entretanto os autores não usaram esta variável como categórica e computaram valores absolutos da dessaturação em dois TC6s. Nós acreditamos que a informação importante aqui é a ocorrência da dessaturação per si, fato que não é observado em indivíduos normais (Trooster T e cols, 1999).

Em nosso estudo o Δsat ≥4% associou-se significativamente com a idade, a classe II da classificação de incapacidade, o radiograma de tórax com sinais do fibrose intersticial e uma PSAP ≥ 30 mmHg. Estas associações também foram encontradas com a distância da caminhada ($p<0.05$). Entretanto associações significativas com algumas variáveis foram observadas com o Δsat exclusivamente. Este é o caso da presença do anticorpo Scl 70, encontrado geralmente em pacientes com esclerodermia com FPI difusa. Redução da CVF na espirometria (< 80% do valor previsto), apareceu também como uma associação significativa com Δsat ($p<0.001$).

A associação significativa da dessaturação durante o TC6 com o escore ≥ 6 na opacidade em VF ($p<0.05$) e na opacidade reticular ($p<0.001$) talvez se deva à capacidade da dessaturação no TC6 em detectar estas anormalidades precoces durante a história natural da doença do pulmão no escleroderma.

Na regressão logística multivariada a chance de um paciente com ES de andar menos de 400m no TC6 era 82.3%, se todas as seguintes circunstâncias estivessem presentes: 36 ou mais anos de idade, raça negra e classe II de incapacidade (tabela 5). Uma

probabilidade de Δsat ≥4% de 98.3% foi prevista se todas as seguintes circunstâncias estivessem presentes: idade > 36, FVC< 80, Scl-70 positivo e classe II de incapacidade funcional (tabela 6).

Curiosamente, a raça apareceu como uma associação importante com a distância caminhada na análise multivariada, fato este não observado na análise univariada. A etnicidade influencia a suscetibilidade ao escleroderma e a outras doenças autoimmunes. Mulheres negras americanas são diagnosticadas quase duas vezes mais com esclerodermia do que as mulheres caucasianas. Além disso, as americanas negras tem maior probabilidade de apresentar uma doença clínica mais grave, um início de doença mais precoce e uma taxa menor de sobrevivência (Mayes MD e cols, 2004).

O comprometimento funcional mais comum nos pacientes com doença de pulmonar é a troca gasosa ineficiente. Em estágios menos avançados de muitas doenças de pulmão a SpO2 é normal em repouso, mas quando há um aumento da demanda provocada pelo exercício, a dessaturação de oxigênio pode aparecer. Portanto, como pôde ser apreciado neste estudo, além da distância caminhada, a dessaturação de oxigênio pode ser uma outra variável valiosa a ser avaliada no resultado do TC6.

6- CONCLUSÕES

1- O TC6 mostrou-se aplicável a uma população de pacientes com esclerodermia, desde que bem selecionados, para garantir a detecção de um bom sinal de pulso na oximetria, e adequadamente supervisionados durante o teste, para evitar ultrapassar a capacidade de exercício de cada um dos doentes.

2- As variáveis que apresentaram associação estatística com a distância caminhada < 400 m foram idade, índice de dispnéia, fibrose no raio X de tórax, PSAP ≥ 30 mmhg e no Δsat > 4%. As variáveis que apresentaram associação estatística com Δsat foram a idade, a presença do anti SCL70, índice de dispnéia, fibrose no raio X de tórax, CVF < 80% do valor previsto, PSAP ≥ 30 mm Hg, presença de opacidade em VF e opacidade reticular (escore maior que 6) na TCAR; as opacidades em faveolamento não apresentaram nenhuma associação com Δsat. Na análise da regressão logística multivariada, três variáveis (idade, da raça e índice de dispnéia) apresentaram significância estatística quando testadas com a distância caminhada, e quatro variáveis (idade, índice do dispnéia, presença de Scl-70 e CVF < 80% do valor previsto) foram significativas quando testadas com Δsat

3- A ocorrência de dessaturação é pelo menos tão informativa quanto a redução da distância caminhada no TC6 e os resultados obtidos sugerem que ela pode fornecer informação adicional a respeito do comprometimento pulmonar em pacientes portadores de Esclerose Sistêmica.

7- REFERÊNCIAS BIBLIOGRÁFICAS

Agusti AG, Roca J, Rodriguez-Roisin R, et al. Different patterns of gas exchange response to exercise in asbestosis and idiopathic pulmonary fibrosis. Eur Respir J 1988; 1:510-516.

American Heart Association. 1994 Revisions to classification of functional capacity and objective assessment of patients with diseases of the heart. http://www.americanheart.org . 2005

American Thoracic Society. ATS statement: guidelines for the 6-minute walk test. Am J Respir Crit Care Med 2002; 166:111-117.

Azevedo AB, Sampaio-Barros PD, Torres RM, Moreira C. Prevalence of pulmonary hipertension in systemic sclerosis. Clin Exp Rheumatol 2005; 23:447-454.

Badesch DB, Tapson VF, McGoon MD, et al. Continuous intravenous epoprostenol for pulmonary hypertension due to the scleroderma spectrum of disease. Ann Intern Med 2000; 132:425-434.

Barbosa LSG, Leite N, Lederman R, et al. Hipertensão pulmonar maligna na esclerose sistêmica progressiva. Rev Bras Reumatol 1981; 21:93-96.

Battle RW, Davitt MA, Cooper SM, Buckley LM, Leib ES, Beglin PA et al. Prevalence of Pulmonary Hypertension in Limited and Diffuse Scleroderma. Chest 1996; 110:1515-1519.

Bittner V, Weiner D, Yusuf S et al. Prediction of mortality and morbidity with a six minute walk test in patients with left ventricular dysfunction. J Am Med Ass 1993; 270: 1702-1707

Bolster MB, Silver RM. Lung disease in systemic sclerosis (scleroderma). Baillieres Clin Rheumatol 1993;7:79-97

Bolster MB, Silver RM. Lung disease in systemic sclerosis (scleroderma). Semin Respir Crit Care Med 1999;20:109-120

Cahalin L, Mathier M et al. The six minute walk test predicts peak oxygen uptake and survival in patients with advanced heart failure. Chest 1996; 110: 325-332.

Denton CP, Cailes JB, Philips GD, Wells AU, Black C, Du Bois RM. Comparison of Doppler echocardiography and right heart catheterization in systemic sclerosis. Br J Rheumatol 1997; 36:239-243.

Desai SR, Veeraraghavan S, Hansell DM, et al. CT Features of Lung Disease in Patients With Systemic Sclerosis: Comparison With Idiopathic Pulmonary Fibrosis and Nonspecific Interstitial Pneumonia. Radiology 2004; 232:560-567.

Eaton T, Young P, Milne D, et al. Six-Minute Walk, Maximal Exercise Tests - Reproducibility in Fibrotic Interstitial Pneumonia. Am J Respir Crit Care Med 2005; 171:1150-1157.

Epler GR, McLoud TC, Gaensler EA et al. Normal chest roentgenograms in chronic diffuse infiltrative lung disease. N Engl J Med 1978; 298:934-939

Farber HW, Loscalzo J. Pulmonary arterial hypertension. N Engl J Med. 2004; 14;351(16):1655-65.

Guyatt GH, Sullivan MJ, Thompson et al. The 6-minute walk: a new measure of exercise capacity in patients with chronic heart failure. Can Med Assoc J, 1985; 132: 919-923.

Hallstrand TS, Boitano LJ, Johnson WC, Spada CA, Hayes JG, Raghu G. The Timed Walk Test as a measure of severity and survival in idiopathic pulmonary fibrosis. Eur Respir J 2005; 25:96-103.

King TE, Schwarz MI, Brown K et al. Idiopathic pulmonary fibrosis: relationship between histopathologic features and mortality. Am J Respir Crit Care Med 2001; 164:1025-1032.

King TE, Tooze JA, Schwarz MI et al. Predicting survival in idiopathic pulmonary fibrosis: scoring system and survival model. Respir Crit Care Med 2001; 164:1171-1181

Lama VN, Flaherty KR, Toews GB, et al. Prognostic Value of Desaturation during a 6-minute Walk Test in Idiopathic Interstitial Pneumonia. Am J Respir Crit Care Med 2003; 168:1084-1090.

LeRoy EC, Black C, Fleischmajer R et al. Scleroderma (systemic sclerosis): classification, subsets and pathogenesis. J Rheumatol 1988; 15:202-205.

Lipkin DP, Scriven J, Poole-Wilson P. Six minute walking test for assessing exercise capacity in chronic heart failure. British Med Journal 1986; 292: 653-655

MacGregor AJ, Canavan R, Knight C, et al. Pulmonary hypertension in systemic sclerosis: risk factors for progression and consequences for survival. Rheumatology 2001; 40:453-459.

McLaughlin VV, Sitbon O, Badesch DB, Barst RJ, Black C, Galiè N et al. Survival with first-line bosentan in patients with primary pulmonary hypertension. Eur Respir J 2005; 25:244-249.

Mapel DW, Samet JM, Coutlas DB. Corticosteroids and the treatment of idiopathic pulmonary fibrosis: past, present, and future. Chest 1996; 110:1058-1067.

Marques-Neto JF e Sampaio-Barros PD. Esclerose Sistêmica. In: Moreira C e Carvalho MAP, Reumatologia – diagnóstico e tratamento. Rio de Janeiro: Editora Médica e Científica Ltda; 2001. p.465-80.

Mayes MD. Scleroderma epidemiology. Rhem Dis Clin N Am 2003; 29: 239-254

Miki K, Maekura R, Hiraga T, et al. Impairments and prognostic factors for survival in patients with idiopathic pulmonary fibrosis. Respir Med 2003; 97:482-490.

Miles DS, Critz JB, Knowlton RG, et al. Cardiovasclar, metabolic, and ventilatory responses of women to equivalent cycle ergometer and treadmill exercise. Med Sci Sports Exerc 1980; 12:14-19.

Miyamoto S, Nagaya N, Satoh T, Kyotani S, Sakamaki F, Fujita M et al. Clinical Correlates and Prognostic Significance of Six-minute Walk Test in Patients With Primary Pulmonary Hypertension. Am J Respir Crit Care Med 2000; 161:487-492.

Morelli S, Ferrante L, Sgreccia A et al. Pulmonary hypertension is associated with impaired exercise performance in patients with systemic sclerosis. Scand J Rheumatol 2000; 29: 236-242

Mukerjee D, St George D, Coleiro B, et al. Prevalence and outcome in systemic sclerosis associated pulmonary arterial hypertension: application of a registry approach. Ann Rheum Dis 2003; 62:1088-1093.

Oudiz RJ, Schilz RJ, Barst RJ, et al. Treprostinil, a prostacycline analogue, in pulmonary hypertension associated with connective tissue disease. Chest 2004; 126:420-427.

Paciocco G, Martinez FJ, Bossone E, Pielsticker E, Gillespie B, Rubenfire M. Oxygen desaturation on the six-minute walk test and mortality in untreated primary pulmonary hypertension. Eur Respir J 2001; 17:647-652.

Préfaut C, Durand F, Mucci P et al. Exercise-induced arterial hypoxemia in athletes: a review. Sports Med 2000; 30:47-61.

Redelmeier DA, Bayoumi AM, Goldstein R, Guyatt G. Interpreting small differences in functional status: the six minute walk test in chronic lung disease patients. Am J Respir Crit Care Med 1997; 155:1278-1282.

Rubin LJ, Badesch DB, Barst RJ et al. Bosentan therapy for pulmonary arterial hypertension. N Engl J Med 2002; 346:896-903.

Simeon CP, Armadans L, Fonollosa V, et al. Survival prognostic factors and markers of morbidity in Spanish patients with systemic sclerosis. Ann Rheum Dis 1997;56:723-728. Sitbon O, Nunes H, Parent F, Garcia G, Herve P, et al. Long-term intravenous epoprostenol infusion in primary pulmonary hypertension: prognostic factors and survival. J Am Coll Cardiol 40[4], 780-788. 2002.

Troosters T, Gosselink R, Decramer M. Six minute walking distance in healthy elderly subjects. Eur Respir 1999; 14:270-274.

Troosters T, Vilaro J, Rabinovich R, Casas A, Barberá JA, Rodrigues-Roisin R et al. Physiological responses to the 6-min walk test in patients with chronic obstructive pulmonary disease. Eur Respir 2002; 20:564-569.

Wechsler RJ, Steiner RM, Spirn PW et al. The relationship of thoracic lymphadenopathy to pulmonary interstitial disease in diffuse and limited systemic sclerosis: CT findings. AJR 1996; 167:101-104.

Williamson DJ, Hayward C, Rogers P, et al. Acute hemodynamic responses to inhaled nitric oxide in patients with limited scleroderma and isolated pulmonary hypertension. Circulation 1996;94:477-482.

Zugek C, Keuger C et al. Is the six minutes walk test a reliable substitute for peak oxygen uptake in patients with dilated cardiomiopathy?. Eur Heart Journal 2000; 21:540-549.

8- ANEXOS

CHEST

Original Research

SCLERODERMA PULMONARY DISEASE

Six-Minute Walk Test for the Evaluation of Pulmonary Disease Severity in Scleroderma Patients*

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Background: **Pulmonary involvement is the leading cause of systemic sclerosis (SSc)-related deaths. A simple test to evaluate exercise capacity is the 6-min walk test (6MWT), and the walk distance is used as a primary outcome in clinical trials. Hemoglobin desaturation during a 6MWT is predictive of mortality in patients with primary pulmonary hypertension. Our objectives were to evaluate the walk distance and resting oxygen saturation − oxygen saturation after the 6-min period (ΔSat) during the 6MWT in patients with SSc, and to establish correlations between the 6MWT results and other clinical variables.**

Methods: **We analyzed 110 SSc patients. ΔSat was defined as a fall of end-of-test saturation ≥ 4%. Clinical and demographic data were collected. All the patients were submitted to chest radiographs and high-resolution CT (HRCT) and underwent pulmonary function testing and echocardiography, and the presence of autoantibodies was determined.**

Results: **The variables associated with a walk distance < 400 m ($p < 0.05$) were age, dyspnea index, fibrosis on radiography, pulmonary arterial systolic pressure (PASP) ≥ 30 mm Hg, and desaturation. The variables associated with ΔSat ($p < 0.05$) were age, positive anti-Scl-70 autoantibody, dyspnea index, fibrosis on radiography, FVC < 80% of predicted, PASP ≥ 30 mm Hg, and ground-glass or reticular opacities on HRCT. In the multivariate logistic regression analysis, three variables were significant when tested with walk distance: age, race, and dyspnea index; four variables were significant when tested with ΔSat: age, dyspnea index, positive anti-Scl-70 autoantibody, and FVC < 80% of predicted.**

Conclusions: **Desaturation during a 6MWT provides additional information regarding severity of disease in scleroderma patients with pulmonary manifestations.**

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Key words: exercise test; exertion; hypoxemia; pulmonary fibrosis

Abbreviations: ΔSat = resting oxygen saturation − oxygen saturation after the 6-min period; 6MWD = 6-min walk distance; 6MWT = 6-min walk test; HRCT = high-resolution CT; IPF = idiopathic pulmonary fibrosis; NYHA = New York Heart Association; PAH = pulmonary arterial hypertension; PASP = pulmonary artery systolic pressure; Spo_2 = oxygen saturation by pulse oximetry; SSc = systemic sclerosis

The etiology and pathogenesis of systemic sclerosis (SSc) remain incompletely understood. SSc is unique in displaying features of three distinct pathophysiologic processes: cellular and humoral autoimmunity, vascular injury, and tissue fibrosis. Vascular injury, both functional and structural, is frequently the earliest manifestation of SSc and may antedate other manifestations by years. Immune abnormalities, especially serum autoantibodies, may also occur early in the course of SSc. Fibrosis, characterized by excessive accumulation of collagen and extracellular matrix components, is usually a late feature. Genetic factors may play a role in the pathogenesis of the disease by affecting host susceptibility or by modifying clinical presentation and organ damage.[1]

Survival is significantly diminished in scleroderma patients compared with age-matched populations. Poor prognostic factors include diffuse skin involve-

ment, male sex, black race, and visceral organ involvement.[2–4] Pulmonary fibrosis and pulmonary arterial hypertension (PAH) are the leading causes of disease-related deaths. SSc patients with lung involvement show a significant reduction in exercise capacity and in oxygen uptake.[5]

A simple test to evaluate exercise capacity is the 6-min walk test (6MWT).[6] Hemoglobin desaturation, as measured by pulse oximetry during a 6MWT, is predictive of mortality in patients with primary pulmonary hypertension[7]; and the 6-min walk distance (6MWD) has been increasingly used as a primary outcome in clinical trials of new drugs indicated in the treatment of pulmonary hypertension in SSc.[8–10]

The objectives of this study were to evaluate the walking distance and oxygen desaturation during the 6MWT in patients with SSc, and to establish correlations between the 6MWT results and other clinical findings. As our main hypothesis, we propose that desaturation at the end of the walk test would be at least as informative of severity of lung involvement as the decrease in walk distance.

Materials and Methods

Patient Selection

Our hospital (Teaching Hospital of the State University of Campinas) is a reference center for scleroderma patients, and > 250 patients are presently being followed up at the institution. A previous selection excluded from the study patients with severe organ involvement, articular disabilities, presence of ischemic cutaneous ulcers, or inadequate pulse signal on pulse oximetry (Raynaud phenomenon). If the resting oxygen saturation by pulse oximetry (Spo_2) was $< 90\%$ in room air, patients were not considered eligible for the 6MWT.

One hundred fourteen patients were selected but 4 were excluded due to the fact that end-of-test saturation was not readable because of an inadequate pulse signal. This prospective study analyzed 110 patients with SSc diagnosed according to the American College of Rheumatology classification criteria[11] and who attended the Scleroderma Outpatient Clinic between January 2003 and December 2004. The patients were classified as diffuse and limited clinical variants.[12] Approval for the use of patient data was obtained from the Research Ethics Committee of the university.

Study Design

All patients were tested under standardized conditions[13] by the same technician (W.O.V.). Baseline BP and heart rate were measured, and Spo_2 was determined using finger probe pulse oximeter (Nonin Medical; Plymouth, MN). The pulse signal was carefully observed during at least 20 s, and the most frequent value on display, measured with a good pulse signal, was chosen. Saturation was measured at rest and immediately after the end of the 6-min period, and the patients were carefully observed during the test to avoid dangerously exceeding their exercise limits. According to the American Thoracic Society guidelines,[13] Spo_2 should not be used for constant monitoring during the exercise and the technician must not walk with the patient to observe Spo_2. This procedure could interfere with the results of both the measurement of the oximeter, because of motion artifact and the final distance achieved by the patient. Pulse oximeters that better protect against motion artifacts and models that can be attached to the patients and are capable of sending data by telemetry could have been used, but these machines are not available at our institution.

For the purpose of data analysis, desaturation (resting oxygen saturation − oxygen saturation after the 6-min period [ΔSat]) was defined as a decrease in Spo_2 from baseline $\geq 4\%$. The 4% fall was validated in a study[14] of exercise-induced hypoxemia during maximal exercise tests in athletes. The walk distance was considered abnormal when < 400 m.

All 110 patients underwent plain chest radiography. Pulmonary function tests were performed using a spirometer (model AM 4000 PC; Anamed; São Paulo City, São Paulo, Brazil). The severity of dyspnea was evaluated in all patients, and they were classified according the New York Heart Association (NYHA) classification of functional capacity.[15]

Chest high-resolution CT (HRCT) examinations were performed (Somaton AR; Siemens; Erlangen, Germany) and scored for ground-glass attenuation, reticular opacities, and honeycombing. The scoring system was based on the proposal of Wechsler et al,[16] with modifications. To analyze each CT scan, the lungs were divided into six regions. For each abnormality, and in each one of the six regions, a score grade was chosen (between 0 and 3). The total score varied from 0 to 18. Doppler echocardiography was performed to estimate pulmonary artery systolic pressure (PASP).

Statistical Analysis

Two main dichotomic variables were chosen, $\Delta Sat \geq 4\%$ and walk distance < 400 m, and these categorical variables were used as dependent variables. Categorical data were compared using χ^2 tests or Fisher Exact Test when necessary, and continuous data were compared using Mann-Whitney test. The analyses were performed using statistical software (Epi Info, Version 6.04d; Centers for Disease Control and Prevention; Atlanta, GA; and SPSS version 6.0; SPSS; Chicago, IL).

Multiple logistic regression analysis was used to determine whether baseline demographic, physiologic, serologic, and radiographic information could predict desaturation or a walk distance < 400 m. Appropriate tests determined the significance of interaction terms.

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Results

Among the 110 SSc patients analyzed in the present study, 96 patients (87.3%) were female. Regarding race, there were 76 whites (69.1%) and 34 African Brazilians (30.9%). For statistical purposes, patients were subclassified into groups ≥ 36 years old (82 patients, 74.5%) and < 36 years old (28 patients, 25.5%) because 25% of the patients in the study belonged to the first quartile. On the topic of the SSc clinical variant, 78 patients (70.9%) presented limited SSc and 32 patients (29.1%) presented diffuse SSc. Laboratory analysis revealed that antinuclear antibody was positive in 86.2% of the cases, while anticentromere antibody was present in 10.9%. Anti-Scl-70 autoantibody was positive in 28 patients (25.5%): 16 patients (20%) with limited SSc, and 12 patients (37%) with diffuse SSc.

According to the NYHA classification,[15] 91 patients (82.7%) were classified as grade I, and 19 patients (17.3%) were classified as grade II. An altered FVC (< 80% of predicted) was present in 45 patients (42.4%). The medians and range of FVC and FEV_1 (expressed percentage of predicted value) and FEV_1/FVC were 88.5% (35 to 124%), 81.5% (41 to 137%), and 80% (70 to 99%), respectively.

Thirty-three patients (30%) had chest radiographs showing reticular and heterogeneous opacities suggestive of pulmonary fibrosis. The scores for each of the analyzed patterns on HRCT can be seen in Table 1. A score ≥ 6 points was observed for ground-glass opacities in 23% of the patients, for reticular opacities in 32.4% of the patients, and for honeycombing in 11.8% of the patients. Doppler echocardiography results revealed that PASP was ≥ 30 mm Hg in 32 patients (29.1%).

The two variables used in the statistical analysis as dependent, ΔSat ≥ 4% and walk distance < 400 m, were present in 31 patients (29.5%) and in 32 patients (28.2%), respectively. These and further information regarding the 6MWT results are shown in Table 2.

Table 1—*Tomographic Characteristics of the Subjects Studied*

CT Findings	%
Reticular opacities	
Score ≥ 6	32.4
Score < 6	67.6
Ground-glass opacities	
Score ≥ 6	23
Score < 6	77
Honeycombing	
Score ≥ 6	11.8
Score < 6	88.2

Table 2—*6MWT Results (n = 110)*

Variables	Data
Median walk distance (range), m	450 (150–660)
Patients with walk distance < 400 m, No. (%)	31 (28)
Patients with ΔSat ≥ 4%, No. (%)	31 (28)
Mean ΔSat among patients with ΔSat ≥ 4%, %	6.87
Mean ΔSat among patients with ΔSat < 4%, %	0.57

Statistical data concerning walk distance in 6MWT are stated in Table 3. This table shows that the variables that presented statistical association with a walk distance < 400 m were age, dyspnea index, fibrosis on chest radiography, PASP ≥ 30 mm Hg, and ΔSat ≥ 4%. The variables that presented statistical association with ΔSat (Table 3) were age, positive anti-Scl-70 autoantibody, dyspnea index, fibrosis on chest radiograph, FVC < 80% of the predicted value, PASP ≥ 30 mm Hg, and presence of ground-glass or reticular opacities on HRCT.

In the multivariate logistic regression analysis, three variables (age, race, and dyspnea index) presented statistical significance when tested with the walk distance, and four variables (age, dyspnea index, positive anti-Scl-70 autoantibody, and FVC < 80% of the predicted value) presented statistical significance when tested with ΔSat (Tables 4, 5).

Multiple logistic regression analysis revealed that the probability of walking < 400 m in the 6MWT for a scleroderma patient in our study was 82.3% if all the following conditions were present: age ≥ 36 years, Afrrican-Brazilian origin, and NYHA class II classification of disability (Table 4). However, a probability of 98.3% for ΔSat ≥ 4% was predicted if

Table 3—*6MWT, Univariate Analysis: Variables Associated With Walk Distance and With Δ Sat*

Variables	Walk Distance, p Value	ΔSat, p Value
Sex	0.34	1.00
Race	0.72	0.34
Age	0.008*	0.02*
Disease duration	0.84	0.95
Clinical variant	0.82	0.65
Antinuclear antibody	0.11	0.21
Anti-Scl-70	0.20	< 0.001*
Dyspnea	0.003*	< 0.001*
Chest radiography (fibrosis)	0.05*	< 0.001*
FVC < 80% of predicted	0.15	< 0.001*
CT ground-glass opacity	0.88	0.02*
CT reticular opacity	0.49	< 0.001*
CT honeycombing	0.30	0.31
PASP	0.036*	0.01*
ΔSat	< 0.001*	
Walk distance		< 0.001*

*Significance at $p < 0.05$.

Table 4—*Multivariate Logistic Regression Analysis: Risk Prediction of Walk Distance < 400 m*

Age, yr	Dyspnea	Race	Probability, %
< 36	Class I	White	3.2
		African Brazilian	8.7
	Class II	White	17.3
		African Brazilian	37.4
> 36	Class I	White	20.6
		African Brazilian	42.6
	Class II	White	61.9
		African Brazilian	82.3

all the following conditions were present: age ≥ 36 years, FVC < 80% of predicted, positive anti-Scl-70 autoantibody, and NYHA class II classification of disability (Table 5).

Discussion

The 6MWT is a simple and inexpensive test that requires a minimum number of health-care staff and can be performed in an office setting. In patients with pulmonary hypertension, the 6MWT has been recognized as a strong and independent predictor of mortality.[17–19] Nevertheless, in most of these trials the parameter analyzed in 6MWT is the walk distance.

In fibrotic idiopathic interstitial pneumonia, Eaton et al[20] found that the distance walked during the 6MWT is highly reproducible and unlikely to improve with repeated testing. Normal values of walk distance are not available. Troosters et al[21] evaluated 51 healthy subjects aged 50 to 85 years and no history of chronic disease with the 6MWT. On average, subjects walked 631 ± 93 m (mean ± SD). Oxygen saturation remained unaltered throughout the tests.

In this study, we chose 400 m as the cut-off limit of the 6MWD to compensate for differences in age, height, weight, sex, and muscle strength. Nevertheless, age retained a significant association with 6MWD of < 400 m, although the median age of the patients in the study was 45.5 years.

Another important association with walk distance in this study was the NYHA functional class.[15] Class II patients had much greater probability of a 6MWD of < 400 m. Our results agree with the findings of Miyamoto et al,[17] who demonstrated in patients with primary pulmonary hypertension that the distance walked during the 6MWT significantly decreased in proportion to the severity of the NYHA functional class.

We found an association between the evidence of fibrosis on radiography and the walk distance ($p = 0.05$). Nevertheless, there was no relationship between walk distance and the findings on chest HRCT. It is well known that the HRCT is more sensitive and specific to detect mild alterations in interstitial pulmonary diseases.[22] The majority of our CT findings (Table 1) were scored in the lowest score levels (score < 6). According to Desai et al,[23] interstitial lung disease in patients with SSc is less extensive, less coarse, and characterized by a greater proportion of ground-glass opacities than in patients with interstitial pulmonary fibrosis (IPF).

The reported rates of PAH in scleroderma patients have been wide ranging (5 to 50%), depending on the methodology used and the cut-off value of PASP considered for diagnosis.[24–27] Doppler echocardiography is a helpful means of assessing PASP.[24–27]

The cutoff value of ≥ 30 mm Hg to define the presence of PAH[28] is somewhat low, but in our study it was significantly associated with 6MWD < 400 m and ΔSat ≥ 4%. According to MacGregor et al,[26] a single echocardiography PASP reading ≥ 30 mm Hg in scleroderma is associated with 20% mortality in 20 months. The results of 6MWD in our study agree with the findings in studies[10,17] that evaluated 6MWD in patients with PAH of other etiologies.

It is quite common among patients with IPF and/or PAH to present with normal Spo_2 at rest. However, during submaximal exercise some of them will show desaturation.[29]

End-exercise Pao_2 during maximal exercise[30,31] and submaximal steady-state exercise[31] are important measures of disease severity in IPF, and these observations allow us to raise the hypothesis that decrease in saturation during self-paced walking is a meaningful measure of disease status in patients with

Table 5—*Multivariate Logistic Regression Analysis: Risk Prediction of Δ Sat ≥ 4%*

Dyspnea	Age, yr	Anti-Scl-70	FVC. % Predicted	Probability, %
Class I	< 36	Negative	≥ 80	1.2
			< 80	6.0
		Positive	≥ 80	6.1
			< 80	25.4
	≥ 36	Negative	≥ 80	8.8
			< 80	33.7
		Positive	≥ 80	33.8
			< 80	72.9
Class II	< 36	Negative	≥ 80	20.5
			< 80	57.7
		Positive	≥ 80	57.8
			< 80	87.9
	≥ 36	Negative	≥ 80	67.1
			< 80	91.5
		Positive	≥ 80	91.5
			< 80	98.3

Table 6—*Comparison of Relative Strength of the Dependent Variables 6MWD < 400 m and Δ Sat ≥ 4% in the Multiple Logistic Regression Model*

Variables	Variables Significantly Associated	χ^2	Degrees of Freedom	p Value
6MWD < 400 m	Age, race, dyspnea	23.494	3	0.000032
ΔSat ≥ 4%	Age, dyspnea, anti-Scl-70, FVC < 80% predicted	51.978	4	0.000001

scleroderma lung disease. Lama et al[32] demonstrated that patients with usual interstitial pneumonia who desaturate during a 6MWT (ΔSat ≥ 4%) had a more than fourfold-higher hazard of dying during follow-up.

In another study of 41 patients with IPF, exercise-induced hypoxemia evaluated by $\Delta Pao_2/\Delta$oxygen uptake on cardiopulmonary exercise testing was strongly correlated with survival.[33] However, cardiopulmonary exercise testing is infrequently used to evaluate patients with IPF,[34] probably because of the expense and limited availability of this diagnostic modality.

In the study by Eaton et al,[20] the value of hemoglobin desaturation on pulse oximetry was found to be nonreproducible, with unacceptable measurement variation. However, they did not use this variable as a categorical one; instead, they computed the values of saturation in two 6MWTs. We believe that the important information here is the occurrence of desaturation *per se*, a fact that is not observed in normal subjects.[21]

In our study, ΔSat ≥ 4% was significantly associated with age, NYHA class II of the classification of disability, a radiograph with signs of interstitial fibrosis, and PASP ≥ 30 mm Hg. These associations were also found with walk distance ($p < 0.05$). However, significant associations were observed with some variables and ΔSat exclusively. This was the case with the presence of a positive anti-Scl-70 autoantibody, generally found positive in scleroderma patients with pulmonary fibrosis.[35] Reduction in FVC in spirometry, another characteristic feature of pulmonary fibrosis, also had a significant association with ΔSat ($p < 0.001$).

On HRCT, a score ≥ 6 for ground-glass opacities ($p < 0.05$) and reticular opacities ($p < 0.001$) was associated with ΔSat, maybe reflecting the ability of desaturation on the 6MWT to detect these early interstitial abnormalities. The variable 6MWD < 400 m in the multiple logistic regression analysis model was significantly associated with age, race, and dyspnea, while ΔSat ≥ 4% was associated with age, dyspnea, and two other variables related to pulmonary involvement: FVC < 80% of predicted and a positive Scl-70 antibody. But the statistical model applied to the data cannot indicate which of these dependent variables was stronger in predicting pulmonary disease. Nevertheless, it seems that ΔSat ≥ 4% may supply more information on this topic (Table 6).

Curiously, race appeared as an important association with walk distance on the multivariate analysis but not in the univariate analysis. It has become increasingly apparent that ethnicity influences susceptibility to scleroderma and other autoimmune diseases. Scleroderma is diagnosed almost twice as often in African-American women than in white women, and African-American women have more severe clinical disease, earlier age of onset, and worse survival rates.[36]

The most common functional impairment in patients with lung disease is impaired gas exchange. In early stages, Spo_2 is normal at rest, but when the demand increases, as occurs during exercise, oxygen desaturation may appear. As it could be appreciated in this study, besides the walking distance, oxygen desaturation may be another valuable outcome variable in 6MWT.

References

1 Varga J, Korn JH. Pathogenesis of systemic sclerosis: emphasis on human data. In: Clements PJ, Furst DE, eds. Systemic sclerosis. 2nd ed. Philadelphia, PA: Lippincott, Williams and Wilkins, 2004; 63–88

2 Ferri C, Valentini G, Cozzi F, et al. Systemic sclerosis: demographic, clinical, and serologic features and survival in 1012 Italian patients. Medicine (Baltimore) 2002; 81:139–153

3 Geirsson AJ, Wollheim FA, Akesson A. Disease severity of 100 patients with systemic sclerosis over a period of 14 years. Ann Rheum Dis 2002; 60:1117–1122

4 Scussel-Lonzeti L, Joyal F, Raynauld JP, et al. Predicting mortality in systemic sclerosis: analysis of a cohort of 309 French-Canadian patients with emphasis of features at diagnosis as predictive factors. Medicine (Baltimore) 2002; 81: 154–167

5 Morelli S, Ferrante L, Sgreccia A, et al. Pulmonary hypertension is associated with impaired exercise performance in patients with systemic sclerosis. Scand J Rheumatol 2000; 29:236–242

6 Guyatt GH, Sullivan MJ, Thompson PJ, et al. The 6-min walk: a new measure of exercise capacity in patients with chronic heart failure. Can Med Assoc J 1985; 132:919–923

7 Paciocco G, Martinez FJ, Bossone E, et al. Oxygen desaturation on the six-minute walk test and mortality in untreated primary pulmonary hypertension. Eur Respir J 2001; 17:647–652

8 Badesch DB, Tapson VF, McGoon MD, et al. Continuous intravenous epoprostenol for pulmonary hypertension due to the scleroderma spectrum of disease. Ann Intern Med 2000; 132:425–434
9 Oudiz RJ, Schilz RJ, Barst RJ, et al. Treprostinil, a prostacycline analogue, in pulmonary hypertension associated with connective tissue disease. Chest 2004; 126:420–427
10 Rubin LJ, Badesch DB, Barst RJ, et al. Bosentan therapy for pulmonary arterial hypertension. N Engl J Med 2002; 346: 896–903
11 Masi AT, Rodnan GP, Medsger TA, et al. Subcommittee for scleroderma criteria of the American Rheumatism Association Diagnostic and Therapeutic Criteria Committee: preliminary criteria for the classification of systemic sclerosis (scleroderma). Arthritis Rheum 1980; 23:581–590
12 LeRoy EC, Black C, Fleischmajer R, et al. Scleroderma (systemic sclerosis): classification, subsets and pathogenesis. J Rheumatol 1988; 15:202–205
13 American Thoracic Society. ATS statement: guidelines for the 6-minute walk test. Am J Respir Crit Care Med 2002; 166:111–117
14 Préfaut C, Durand F, Mucci P, et al. Exercise-induced arterial hypoxemia in athletes: a review. Sports Med 2000; 30:47–61
15 American Heart Association. 1994 revisions to classification of functional capacity and objective assessment of patients with diseases of the heart. Available at: http://www.americanheart.orghttp://www.americanheart.org. Accessed December 11, 2006
16 Wechsler RJ, Steiner RM, Spirn PW, et al. The relationship of thoracic lymphadenopathy to pulmonary interstitial disease in diffuse and limited systemic sclerosis: CT findings. AJR Am J Roentgenol 1996; 167:101–104
17 Miyamoto S, Nagaya N, Satoh T, et al. Clinical correlates and prognostic significance of six-minute walk test in patients with primary pulmonary hypertension. Am J Respir Crit Care Med 2000; 161:487–492
18 Sitbon O, Nunes H, Parent F, et al. Long-term intravenous epoprostenol infusion in primary pulmonary hypertension: prognostic factors and survival. J Am Coll Cardiol 2002; 40:780–788
19 McLaughlin VV, Sitbon O, Badesch DB, et al. Survival with first-line bosentan in patients with primary pulmonary hypertension. Eur Respir J 2005; 25:244–249
20 Eaton T, Young P, Milne D, et al. Six-minute walk, maximal exercise tests: reproducibility in fibrotic interstitial pneumonia. Am J Respir Crit Care Med 2005; 171:1150–1157
21 Troosters T, Gosselink R, Decramer M. Six-minute walking distance in healthy elderly subjects. Eur Respir J 1999; 14:270–274
22 Epler GR, McLoud TC, Gaensler EA, et al. Normal chest roentgenograms in chronic diffuse infiltrative lung disease. N Engl J Med 1978; 298:934–939
23 Desai SR, Veeraraghavan S, Hansell DM, et al. CT features of lung disease in patients with systemic sclerosis: comparison with idiopathic pulmonary fibrosis and nonspecific interstitial pneumonia. Radiology 2004; 232:560–567
24 Azevedo AB, Sampaio-Barros PD, Torres RM, et al. Prevalence of pulmonary hypertension in systemic sclerosis. Clin Exp Rheumatol 2005; 23:447–454
25 Denton CP, Cailes JB, Philips GD, et al. Comparison of Doppler echocardiography and right heart catheterization in systemic sclerosis. Br J Rheumatol 1997; 36:239–243
26 MacGregor AJ, Canavan R, Knight C, et al. Pulmonary hypertension in systemic sclerosis: risk factors for progression and consequences for survival. Rheumatology 2001; 40:453–459
27 Mukerjee D, St George D, Coleiro B, et al. Prevalence and outcome in systemic sclerosis associated pulmonary arterial hypertension: application of a registry approach. Ann Rheum Dis 2003; 62:1088–1093
28 Battle RW, Davitt MA, Cooper SM, et al. Prevalence of pulmonary hypertension in limited and diffuse scleroderma. Chest 1996; 110:1515–1519
29 Hallstrand TS, Boitano LJ, Johnson WC, et al. The timed walk test as a measure of severity and survival in idiopathic pulmonary fibrosis. Eur Respir J 2005; 25:96–103
30 King TE, Schwarz MI, Brown K, et al. Idiopathic pulmonary fibrosis: relationship between histopathologic features and mortality. Am J Respir Crit Care Med 2001; 164:1025–1032
31 King TE, Tooze JA, Schwarz MI, et al. Predicting survival in idiopathic pulmonary fibrosis: scoring system and survival model. Respir Crit Care Med 2001; 164:1171–1181
32 Lama VN, Flaherty KR, Toews GB, et al. Prognostic value of desaturation during a 6-minute walk test in idiopathic interstitial pneumonia. Am J Respir Crit Care Med 2003; 168: 1084–1090
33 Miki K, Maekura R, Hiraga T, et al. Impairments and prognostic factors for survival in patients with idiopathic pulmonary fibrosis. Respir Med 2003; 97:482–490
34 Mapel DW, Samet JM, Coutlas DB. Corticosteroids and the treatment of idiopathic pulmonary fibrosis: past, present, and future. Chest 1996; 110:1058–1067
35 Steen VD. Autoantibodies in systemic sclerosis. Semin Arthritis Rheum 2005; 35:35–42
36 Mayes MD, Reveille JD. Epidemiology, demographics, and genetics. In: Systemic sclerosis. 2nd ed. Philadelphia, PA: Lippincott, Williams and Wilkins, 2004; 1–16

Análise Univariada

SEXO	Freq	Percent	Cum.
F	96	87.3%	87.3%
M	14	12.7%	100.0%
Total	110	100.0%	

RACA	Freq	Percent	Cum.
A	1	0.9%	0.9%
C	76	69.1%	70.0%
NC	33	30.0%	100.0%
Total	110	100.0%	

RACAGR	Freq	Percent	Cum.
C	76	69.1%	69.1%
NC	34	30.9%	100.0%
Total	110	100.0%	

IDADE	Freq	Percent	Cum.
18	1	0.9%	0.9%
22	4	3.6%	4.5%
23	1	0.9%	5.5%
24	2	1.8%	7.3%
25	2	1.8%	9.1%
26	2	1.8%	10.9%
27	1	0.9%	11.8%
28	1	0.9%	12.7%
29	2	1.8%	14.5%
30	2	1.8%	16.4%
32	4	3.6%	20.0%
33	4	3.6%	23.6%
34	1	0.9%	24.5%
35	1	0.9%	25.5%
36	1	0.9%	26.4%
37	1	0.9%	27.3%
38	8	7.3%	34.5%
39	1	0.9%	35.5%
40	2	1.8%	37.3%
41	5	4.5%	41.8%
42	3	2.7%	44.5%
43	1	0.9%	45.5%
44	3	2.7%	48.2%
45	2	1.8%	50.0%
46	4	3.6%	53.6%
47	4	3.6%	57.3%
48	4	3.6%	60.9%
49	3	2.7%	63.6%
50	2	1.8%	65.5%
51	2	1.8%	67.3%
52	1	0.9%	68.2%
54	1	0.9%	69.1%
56	1	0.9%	70.0%
57	6	5.5%	75.5%
58	3	2.7%	78.2%
59	1	0.9%	79.1%
60	3	2.7%	81.8%
61	3	2.7%	84.5%
63	5	4.5%	89.1%
64	2	1.8%	90.9%
66	5	4.5%	95.5%
67	2	1.8%	97.3%
68	1	0.9%	98.2%
70	1	0.9%	99.1%
73	1	0.9%	100.0%
Total	110	100.0%	

Mean	Std Dev	Median
45.491	13.691	45.500

TD	Freq	Percent	Cum.
1	2	1.8%	1.8%
2	10	9.1%	10.9%
3	7	6.4%	17.3%
4	9	8.2%	25.5%
5	6	5.5%	30.9%
6	6	5.5%	36.4%
7	7	6.4%	42.7%
8	4	3.6%	46.4%
9	4	3.6%	50.0%
10	7	6.4%	56.4%
11	9	8.2%	64.5%
12	8	7.3%	71.8%
13	3	2.7%	74.5%
14	1	0.9%	75.5%
15	2	1.8%	77.3%
16	3	2.7%	80.0%
17	4	3.6%	83.6%
18	3	2.7%	86.4%
19	2	1.8%	88.2%
21	1	0.9%	89.1%
22	5	4.5%	93.6%
23	1	0.9%	94.5%
24	1	0.9%	95.5%
26	1	0.9%	96.4%
29	1	0.9%	97.3%
33	1	0.9%	98.2%
40	1	0.9%	99.1%
43	1	0.9%	100.0%
Total	110	100.0%	

Mean	Std Dev	Median
10.609	7.951	9.500

FC	Freq	Percent	Cum.
D	32	29.1%	29.1%
L	78	70.9%	100.0%
Total	110	100.0%	

FAN	Freq	Percent	Cum.
N	15	13.6%	13.6%
P-CENT	12	10.9%	24.5%
P-HO	15	13.6%	38.2%
P-NU	16	14.5%	52.7%
P-PO	52	47.3%	100.0%
Total	110	100.0%	

FANGR	Freq	Percent	Cum.
N	15	13.6%	13.6%
P-CENT	12	10.9%	24.5%
P-HO/NU/PO	83	75.5%	100.0%
Total	110	100.0%	

SCL70	Freq	Percent	Cum.
N	82	74.5%	74.5%
P	28	25.5%	100.0%
Total	110	100.0%	

DISP	Freq	Percent	Cum.
I	91	82.7%	82.7%
II	19	17.3%	100.0%
Total	110	100.0%	

RXFIP	Freq	Percent	Cum.
N	77	70.0%	70.0%
S	33	30.0%	100.0%
Total	110	100.0%	

CVF	Freq	Percent	Cum.
35	1	0.9%	0.9%
43	1	0.9%	1.9%
46	1	0.9%	2.8%
48	1	0.9%	3.8%
50	2	1.9%	5.7%
52	3	2.8%	8.5%
54	1	0.9%	9.4%
55	1	0.9%	10.4%
56	2	1.9%	12.3%
57	1	0.9%	13.2%
58	1	0.9%	14.2%
61	2	1.9%	16.0%
63	3	2.8%	18.9%
64	5	4.7%	23.6%
66	2	1.9%	25.5%
67	2	1.9%	27.4%
68	2	1.9%	29.2%
69	1	0.9%	30.2%
72	1	0.9%	31.1%
73	1	0.9%	32.1%
74	2	1.9%	34.0%
76	3	2.8%	36.8%
78	3	2.8%	39.6%
79	3	2.8%	42.5%
80	4	3.8%	46.2%
81	1	0.9%	47.2%
82	1	0.9%	48.1%
83	1	0.9%	49.1%
84	1	0.9%	50.0%
85	2	1.9%	51.9%
86	5	4.7%	56.6%
87	1	0.9%	57.5%
88	1	0.9%	58.5%
89	1	0.9%	59.4%
91	1	0.9%	60.4%
92	4	3.8%	64.2%
93	2	1.9%	66.0%
94	3	2.8%	68.9%
95	5	4.7%	73.6%
96	2	1.9%	75.5%
97	4	3.8%	79.2%
98	2	1.9%	81.1%
99	1	0.9%	82.1%
100	1	0.9%	83.0%
101	1	0.9%	84.0%
102	1	0.9%	84.9%
103	3	2.8%	87.7%
104	1	0.9%	88.7%
105	1	0.9%	89.6%
106	1	0.9%	90.6%
107	1	0.9%	91.5%
108	1	0.9%	92.5%
109	1	0.9%	93.4%
111	1	0.9%	94.3%
114	1	0.9%	95.3%
115	1	0.9%	96.2%
117	1	0.9%	97.2%
120	1	0.9%	98.1%
121	1	0.9%	99.1%
124	1	0.9%	100.0%
Total	106	100.0%	

Mean	Std Dev	Median
82.283	19.480	84.500

CVFGR	Freq	Percent	Cum.
< 60	15	14.2%	14.2%
>= 60 A < 80	30	28.3%	42.5%
>= 80	61	57.5%	100.0%
Total	106	100.0%	

FEV	Freq	Percent	Cum.
41	1	0.9%	0.9%
42	1	0.9%	1.9%
51	1	0.9%	2.8%
52	1	0.9%	3.8%
54	1	0.9%	4.7%
59	1	0.9%	5.7%
61	3	2.8%	8.5%
62	2	1.9%	10.4%
63	1	0.9%	11.3%
64	1	0.9%	12.3%
65	2	1.9%	14.2%
67	1	0.9%	15.1%
68	2	1.9%	17.0%
69	3	2.8%	19.8%
70	3	2.8%	22.6%
71	1	0.9%	23.6%
72	1	0.9%	24.5%
73	1	0.9%	25.5%
74	1	0.9%	26.4%
75	6	5.7%	32.1%
77	1	0.9%	33.0%
78	3	2.8%	35.8%
79	3	2.8%	38.7%
80	3	2.8%	41.5%
81	3	2.8%	44.3%
82	2	1.9%	46.2%
83	4	3.8%	50.0%
84	1	0.9%	50.9%
85	2	1.9%	52.8%
86	2	1.9%	54.7%
88	2	1.9%	56.6%
89	2	1.9%	58.5%
90	1	0.9%	59.4%
92	3	2.8%	62.3%
93	1	0.9%	63.2%
94	4	3.8%	67.0%
95	1	0.9%	67.9%
96	1	0.9%	68.9%
97	3	2.8%	71.7%
98	2	1.9%	73.6%
100	2	1.9%	75.5%
101	4	3.8%	79.2%
102	3	2.8%	82.1%
104	3	2.8%	84.9%
105	3	2.8%	87.7%
106	1	0.9%	88.7%
110	1	0.9%	89.6%
112	2	1.9%	91.5%
113	2	1.9%	93.4%
114	4	3.8%	97.2%
115	1	0.9%	98.1%
117	1	0.9%	99.1%
131	1	0.9%	100.0%
Total	106	100.0%	

Mean	Std Dev	Median
85.519	17.975	83.500

TCVF	Freq	Percent	Cum.
- ND	5	4.5%	4.5%
-DESC	1	0.9%	5.5%
-SARC	1	0.9%	6.4%
N	42	38.2%	44.5%
S	3	2.7%	47.3%
S-01	4	3.6%	50.9%
S-02	10	9.1%	60.0%
S-03	2	1.8%	61.8%
S-04	12	10.9%	72.7%
S-05	7	6.4%	79.1%
S-06	11	10.0%	89.1%
S-07	1	0.9%	90.0%
S-08	2	1.8%	91.8%
S-10	2	1.8%	93.6%
S-11	2	1.8%	95.5%
S-13	1	0.9%	96.4%
S-14	2	1.8%	98.2%
S-16	2	1.8%	100.0%
Total	110	100.0%	

TCVFGR	Freq	Percent	Cum.
N	42	42.0%	42.0%
S < 6	35	35.0%	77.0%
S >= 6	23	23.0%	100.0%
Total	100	100.0%	

TCRET	Freq	Percent	Cum.
- ND	5	4.5%	4.5%
-DESC	1	0.9%	5.5%
-SARC	1	0.9%	6.4%
N	41	37.3%	43.6%
S	1	0.9%	44.5%
S-01	3	2.7%	47.3%
S-02	8	7.3%	54.5%
S-03	4	3.6%	58.2%
S-04	9	8.2%	66.4%
S-05	4	3.6%	70.0%
S-06	22	20.0%	90.0%
S-07	1	0.9%	90.9%
S-08	3	2.7%	93.6%
S-09	2	1.8%	95.5%
S-10	1	0.9%	96.4%
S-13	2	1.8%	98.2%
S-17	1	0.9%	99.1%
S-18	1	0.9%	100.0%
Total	110	100.0%	

TCRETGR	Freq	Percent	Cum.
N	41	40.2%	40.2%
S < 6	28	27.5%	67.6%
S >= 6	33	32.4%	100.0%
Total	102	100.0%	

TCFAV	Freq	Percent	Cum.
- ND	5	4.5%	4.5%
-DESC	1	0.9%	5.5%
-SARC	1	0.9%	6.4%
N	71	64.5%	70.9%
S	1	0.9%	71.8%
S-01	2	1.8%	73.6%
S-02	6	5.5%	79.1%
S-03	5	4.5%	83.6%
S-04	5	4.5%	88.2%
S-05	1	0.9%	89.1%
S-06	9	8.2%	97.3%
S-08	1	0.9%	98.2%
S-10	2	1.8%	100.0%
Total	110	100.0%	

TCFAVGR	Freq	Percent	Cum.
N	71	69.6%	69.6%
S < 6	19	18.6%	88.2%
S >= 6	12	11.8%	100.0%
Total	102	100.0%	

TCTOT	Freq	Percent	Cum.
0	38	38.0%	38.0%
2	2	2.0%	40.0%
3	2	2.0%	42.0%
4	7	7.0%	49.0%
5	3	3.0%	52.0%
6	4	4.0%	56.0%
8	3	3.0%	59.0%
9	3	3.0%	62.0%
10	2	2.0%	64.0%
11	2	2.0%	66.0%
12	6	6.0%	72.0%
13	2	2.0%	74.0%
14	2	2.0%	76.0%
15	1	1.0%	77.0%
16	7	7.0%	84.0%
17	2	2.0%	86.0%
18	4	4.0%	90.0%
21	2	2.0%	92.0%
22	2	2.0%	94.0%
24	2	2.0%	96.0%
26	1	1.0%	97.0%
27	1	1.0%	98.0%
32	1	1.0%	99.0%
44	1	1.0%	100.0%
Total	100	100.0%	

Mean	Std Dev	Median
7.920	8.884	5.000

TCTOTGR	Freq	Percent	Cum.
< 6	52	52.0%	52.0%
>= 6	48	48.0%	100.0%
Total	100	100.0%	

TCAM	Freq	Percent	Cum.
150	3	2.7%	2.7%
180	1	0.9%	3.6%
240	2	1.8%	5.5%
260	1	0.9%	6.4%
300	7	6.4%	12.7%
330	2	1.8%	14.5%
340	1	0.9%	15.5%
360	10	9.1%	24.5%
390	4	3.6%	28.2%
400	1	0.9%	29.1%
410	3	2.7%	31.8%
420	9	8.2%	40.0%
440	2	1.8%	41.8%
450	16	14.5%	56.4%
470	1	0.9%	57.3%
480	12	10.9%	68.2%
510	8	7.3%	75.5%
520	1	0.9%	76.4%
540	12	10.9%	87.3%
550	1	0.9%	88.2%
570	3	2.7%	90.9%
600	5	4.5%	95.5%
620	1	0.9%	96.4%
630	1	0.9%	97.3%
660	3	2.7%	100.0%
Total	110	100.0%	

Mean	Std Dev	Median
444.727	108.151	450.000

TCAMGR	Freq	Percent	Cum.
< 400	31	28.2%	28.2%
>= 400	79	71.8%	100.0%
Total	110	100.0%	

OXIIN	Freq	Percent	Cum.
92	2	1.9%	1.9%
93	1	1.0%	2.9%
94	8	7.6%	10.5%
95	7	6.7%	17.1%
96	20	19.0%	36.2%
97	35	33.3%	69.5%
98	26	24.8%	94.3%
99	5	4.8%	99.0%
100	1	1.0%	100.0%
Total	105	100.0%	

Mean	Std Dev	Median
96.686	1.489	97.000

OXIFIM	Freq	Percent	Cum.
76	1	1.0%	1.0%
77	1	1.0%	1.9%
78	2	1.9%	3.8%
84	1	1.0%	4.8%
85	1	1.0%	5.7%
87	1	1.0%	6.7%
88	3	2.9%	9.5%
89	1	1.0%	10.5%
90	4	3.8%	14.3%
91	7	6.7%	21.0%
92	4	3.8%	24.8%
93	3	2.9%	27.6%
94	13	12.4%	40.0%
95	5	4.8%	44.8%
96	15	14.3%	59.0%
97	24	22.9%	81.9%
98	16	15.2%	97.1%
99	3	2.9%	100.0%
Total	105	100.0%	

Mean	Std Dev	Median
94.210	4.642	96.000

DELTA	Freq	Percent	Cum.
0	50	47.6%	47.6%
1	4	3.8%	51.4%
2	15	14.3%	65.7%
3	5	4.8%	70.5%
4	10	9.5%	80.0%
5	4	3.8%	83.8%
6	9	8.6%	92.4%
7	1	1.0%	93.3%
8	1	1.0%	94.3%
9	2	1.9%	96.2%
15	1	1.0%	97.1%
16	2	1.9%	99.0%
17	1	1.0%	100.0%
Total	105	100.0%	

Mean	Std Dev	Median
2.476	3.603	1.000

DELTAGR	Freq	Percent	Cum.
>= 4	31	29.5%	29.5%
< 4	74	70.5%	100.0%
Total	105	100.0%	

ECOPAP	Freq	Percent	Cum.
NL	77	70.0%	70.0%
S-12	1	0.9%	70.9%
S-30	1	0.9%	71.8%
S-33	1	0.9%	72.7%
S-34	2	1.8%	74.5%
S-35	2	1.8%	76.4%
S-37	1	0.9%	77.3%
S-38	3	2.7%	80.0%
S-39	1	0.9%	80.9%
S-40	6	5.5%	86.4%
S-42	3	2.7%	89.1%
S-43	1	0.9%	90.0%
S-45	4	3.6%	93.6%
S-49	1	0.9%	94.5%
S-50	2	1.8%	96.4%
S-54	1	0.9%	97.3%
S-55	2	1.8%	99.1%
S-75	1	0.9%	100.0%
Total	110	100.0%	

ECOPAPGR	Freq	Percent	Cum.
< 30	78	70.9%	70.9%
>= 30 E < 45	21	19.1%	90.0%
>= 45	11	10.0%	100.0%
Total	110	100.0%	

ECT	Freq	Percent	Cum.
2	4	3.7%	3.7%
3	8	7.3%	11.0%
4	5	4.6%	15.6%
5	11	10.1%	25.7%
6	3	2.8%	28.4%
7	15	13.8%	42.2%
8	4	3.7%	45.9%
9	8	7.3%	53.2%
10	3	2.8%	56.0%
11	6	5.5%	61.5%
12	6	5.5%	67.0%
13	2	1.8%	68.8%
14	3	2.8%	71.6%
15	6	5.5%	77.1%
16	1	0.9%	78.0%
17	1	0.9%	78.9%
20	5	4.6%	83.5%
21	2	1.8%	85.3%
22	3	2.8%	88.1%
23	3	2.8%	90.8%
24	3	2.8%	93.6%
25	2	1.8%	95.4%
27	1	0.9%	96.3%
29	2	1.8%	98.2%
31	2	1.8%	100.0%
Total	109	100.0%	

Mean	Std Dev	Median
11.367	7.484	9.000

Análise Bivariada **- Teste da caminhada (distância)**

SEXO	TCAMGR < 400	TCAMGR >= 400	Total
F	29	67	96
M	2	12	14
Total	31	79	110

Fisher exact: 2-tailed P-value: 0.3417869

RACAGR	TCAMGR < 400	TCAMGR >= 400	Total
C	17	59	76
NC	14	20	34
Total	31	79	110

	Chi-Squares	P-values
Uncorrected:	4.11	0.04273968 <---
Mantel-Haenszel:	4.07	0.04369407 <---
Yates corrected:	3.23	0.07234555

MEANS of IDADE for each category of TCAMGR

TCAMGR	Obs	Total	Mean	Variance	Std Dev
< 400	31	1614	52.065	117.529	10.841
>= 400	79	3390	42.911	192.825	13.886
Difference			9.153		

TCAMGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
< 400	29.000	43.000	57.000	61.000	68.000	57.000
>= 400	18.000	32.000	41.000	51.000	73.000	38.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)

Kruskal-Wallis H (equivalent to Chi square) =	9.743
Degrees of freedom =	1
p value =	0.001800

MEANS of TD for each category of TCAMGR

TCAMGR	Obs	Total	Mean	Variance	Std Dev
< 400	31	322	10.387	47.045	6.859
>= 400	79	845	10.696	70.214	8.379
Difference			-0.309		

TCAMGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
< 400	2.000	6.000	10.000	12.000	33.000	11.000
>= 400	1.000	4.000	9.000	15.000	43.000	3.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)

Kruskal-Wallis H (equivalent to Chi square) =	0.043
Degrees of freedom =	1
p value =	0.836529

FC	TCAMGR < 400	TCAMGR >= 400	Total
D	10	22	32
L	21	57	78
Total	31	79	110

	Chi-Squares	P-values
Uncorrected:	0.21	0.64684792
Mantel-Haenszel:	0.21	0.64834809
Yates corrected:	0.05	0.82211102

FAN	TCAMGR < 400	TCAMGR >= 400	Total
N	1	14	15
P-CENT	3	9	12
P-HO	7	8	15
P-NU	3	13	16
P-PO	17	35	52
Total	31	79	110

FANGR	TCAMGR < 400	TCAMGR >= 400	Total
N	1	14	15
P-CENT	3	9	12
P-HO/NU/PO	27	56	83
Total	31	79	110

Fisher exact: 2-tailed P-value: 0,113

SCL70	TCAMGR < 400	TCAMGR >= 400	Total
N	20	62	82
P	11	17	28
Total	31	79	110

	Chi-Squares	P-values
Uncorrected:	2.29	0.13036534
Mantel-Haenszel:	2.27	0.13212589
Yates corrected:	1.61	0.20429905

DISP	TCAMGR < 400	>= 400	Total
I	20	71	91
II	11	8	19
Total	31	79	110

	Chi-Squares	P-values
Uncorrected:	10.02	0.00154996 <---
Mantel-Haenszel:	9.93	0.00162856 <---
Yates corrected:	8.32	0.00391620 <---

RXFIP	TCAMGR < 400	>= 400	Total
N	17	60	77
S	14	19	33
Total	31	79	110

	Chi-Squares	P-values
Uncorrected:	4.72	0.02973123 <---
Mantel-Haenszel:	4.68	0.03048355 <---
Yates corrected:	3.77	0.05208711

MEANS of CVF for each category of TCAMGR

TCAMGR	Obs	Total	Mean	Variance	Std Dev
< 400	29	2302	79.379	570.387	23.883
>= 400	77	6420	83.377	309.712	17.599
Difference			-3.997		

TCAMGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
< 400	35.000	63.000	78.000	97.000	121.000	95.000
>= 400	46.000	68.000	86.000	96.000	124.000	64.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)

Kruskal-Wallis H (equivalent to Chi square) =	0.659
Degrees of freedom =	1
p value =	0.416958

CVFGR	TCAMGR < 400	>= 400	Total
< 60	7	8	15
>= 60 A < 80	9	21	30
>= 80	13	48	61
Total	29	77	106

Chi square =	4.04
Degrees of freedom =	2
p value =	0.13255473

MEANS of FEV for each category of TCAMGR

TCAMGR	Obs	Total	Mean	Variance	Std Dev
< 400	29	2339	80.655	484.020	22.000
>= 400	77	6726	87.351	255.625	15.988
Difference			-6.695		

TCAMGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
< 400	41.000	65.000	79.000	98.000	114.000	114.000
>= 400	51.000	75.000	85.000	101.000	131.000	75.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)

Kruskal-Wallis H (equivalent to Chi square) = 2.195
Degrees of freedom = 1
p value = 0.138431

TCVFGR	TCAMGR < 400	TCAMGR >= 400	Total
N	8	34	42
S < 6	12	23	35
S >= 6	7	16	23
Total	27	73	100

Chi square = 2.43
Degrees of freedom = 2
p value = 0.29702856

TCRETGR	TCAMGR < 400	TCAMGR >= 400	Total
N	7	34	41
S < 6	10	18	28
S >= 6	11	22	33
Total	28	74	102

Chi square = 3.75
Degrees of freedom = 2
p value = 0.15331087

TCFAVGR	TCAMGR < 400	TCAMGR >= 400	Total
N	21	50	71
S < 6	2	17	19
S >= 6	5	7	12
Total	28	74	102

Chi square = 4.11
Degrees of freedom = 2
p value = 0.12798704

TCTOTGR	TCAMGR < 400	>= 400	Total
< 6	13	39	52
>= 6	14	34	48
Total	27	73	100

	Chi-Squares	P-values
Uncorrected:	0.22	0.63915076
Mantel-Haenszel:	0.22	0.64083175
Yates corrected:	0.06	0.80764883

DELTAGR	TCAMGR < 400	>= 400	Total
>= 4	19	12	31
< 4	9	65	74
Total	28	77	105

	Chi-Squares	P-values
Uncorrected:	26.96	0.00000021 <---
Mantel-Haenszel:	26.71	0.00000024 <---
Yates corrected:	24.51	0.00000074 <---

ECOPAPGR	TCAMGR < 400	>= 400	Total
< 30	17	61	78
>= 30 E < 45	8	13	21
>= 45	6	5	11
Total	31	79	110

Chi square = 6.37
Degrees of freedom = 2
p value = 0.04139420 <---

MEANS of ECT for each category of TCAMGR

TCAMGR	Obs	Total	Mean	Variance	Std Dev
< 400	30	360	12.000	48.138	6.938
>= 400	79	879	11.127	59.445	7.710
Difference			0.873		

TCAMGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
< 400	2.000	7.000	11.000	17.000	27.000	7.000
>= 400	2.000	5.000	9.000	15.000	31.000	7.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)
Kruskal-Wallis H (equivalent to Chi square) = 0.837
Degrees of freedom = 1
p value = 0.360221

Análise Bivariada **- Teste da caminhada (delta)**

SEXO	DELTAGR >= 4	DELTAGR < 4	Total
F	27	65	92
M	4	9	13
Total	31	74	105

Fisher exact: 2-tailed P-value: 1.0000000

RACAGR	DELTAGR >= 4	DELTAGR < 4	Total
C	19	54	73
NC	12	20	32
Total	31	74	105

	Chi-Squares	P-values
Uncorrected:	1.41	0.23550192
Mantel-Haenszel:	1.39	0.23774485
Yates corrected:	0.91	0.34012765

MEANS of IDADE for each category of DELTAGR

DELTAGR	Obs	Total	Mean	Variance	Std Dev
>= 4	31	1568	50.581	133.518	11.555
< 4	74	3209	43.365	200.481	14.159
Difference			7.216		

DELTAGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
>= 4	25.000	43.000	51.000	60.000	68.000	57.000
< 4	18.000	33.000	41.500	52.000	73.000	38.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)
Kruskal-Wallis H (equivalent to Chi square) = 5.898
Degrees of freedom = 1
p value = 0.015161

MEANS of TD for each category of DELTAGR

DELTAGR	Obs	Total	Mean	Variance	Std Dev
>= 4	31	277	8.935	26.996	5.196
< 4	74	864	11.676	78.250	8.846
Difference			-2.740		

DELTAGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
>= 4	1.000	4.000	10.000	12.000	22.000	11.000
< 4	1.000	5.000	10.000	17.000	43.000	3.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)
Kruskal-Wallis H (equivalent to Chi square) = 1.220
Degrees of freedom = 1
p value = 0.269271

FC	DELTAGR >= 4	DELTAGR < 4	Total
D	10	19	29
L	21	55	76
Total	31	74	105

	Chi-Squares	P-values
Uncorrected:	0.47	0.49137231
Mantel-Haenszel:	0.47	0.49344290
Yates corrected:	0.20	0.65351962

FAN	DELTAGR >= 4	DELTAGR < 4	Total
N	2	13	15
P-CENT	2	9	11
P-HO	6	9	15
P-NU	3	13	16
P-PO	18	30	48
Total	31	74	105

FANGR	DELTAGR >= 4	DELTAGR < 4	Total
N	2	13	15
P-CENT	2	9	11
P-HO/NU/PO	27	52	79
Total	31	74	105

Fisher exact: 2-tailed P-value: 0,212

SCL70	DELTAGR >= 4	DELTAGR < 4	Total
N	14	65	79
P	17	9	26
Total	31	74	105

	Chi-Squares	P-values
Uncorrected:	21.36	0.00000381 <---
Mantel-Haenszel:	21.15	0.00000424 <---
Yates corrected:	19.13	0.00001222 <---

DISP	DELTAGR >= 4	DELTAGR < 4	Total
I	17	72	89
II	14	2	16
Total	31	74	105

Fisher exact: 2-tailed P-value: 0.0000002 <---

RXFIP	DELTAGR >= 4	DELTAGR < 4	Total
N	11	63	74
S	20	11	31
Total	31	74	105

	Chi-Squares	P-values
Uncorrected:	25.89	0.00000036 <---
Mantel-Haenszel:	25.64	0.00000041 <---
Yates corrected:	23.55	0.00000121 <---

MEANS of CVF for each category of DELTAGR

DELTAGR	Obs	Total	Mean	Variance	Std Dev
>= 4	30	2097	69.900	390.921	19.772
< 4	72	6315	87.708	295.083	17.178
Difference			-17.808		

DELTAGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
>= 4	35.000	56.000	66.500	79.000	120.000	50.000
< 4	52.000	78.500	90.000	98.500	124.000	80.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)

Kruskal-Wallis H (equivalent to Chi square) =	16.955
Degrees of freedom =	1
p value =	0.000038

CVFGR	DELTAGR >= 4	DELTAGR < 4	Total
< 60	9	5	14
>= 60 A < 80	14	15	29
>= 80	7	52	59
Total	30	72	102

Chi square =	21.92
Degrees of freedom =	2
p value =	0.00001736 <---

MEANS of FEV for each category of DELTAGR

DELTAGR	Obs	Total	Mean	Variance	Std Dev
>= 4	30	2167	72.233	274.323	16.563
< 4	72	6573	91.292	245.533	15.670
Difference			-19.058		

DELTAGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
>= 4	41.000	61.000	69.500	82.000	113.000	61.000
< 4	51.000	80.000	92.500	102.000	131.000	94.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)

Kruskal-Wallis H (equivalent to Chi square) =	23.723
Degrees of freedom =	1
p value =	0.000001

TCVFGR	DELTAGR >= 4	DELTAGR < 4	Total
N	6	35	41
S < 6	10	23	33
S >= 6	11	11	22
Total	27	69	96

Chi square = 8.98
Degrees of freedom = 2
p value = 0.01123984 <---

TCRETGR	DELTAGR >= 4	DELTAGR < 4	Total
N	6	34	40
S < 6	5	22	27
S >= 6	17	14	31
Total	28	70	98

Chi square = 15.43
Degrees of freedom = 2
p value = 0.00044660 <---

TCFAVGR	DELTAGR >= 4	DELTAGR < 4	Total
N	15	52	67
S < 6	8	11	19
S >= 6	5	7	12
Total	28	70	98

Chi square = 3.97
Degrees of freedom = 2
p value = 0.13746167

TCTOTGR	DELTAGR >= 4	DELTAGR < 4	Total
< 6	7	44	51
>= 6	20	25	45
Total	27	69	96

	Chi-Squares	P-values
Uncorrected:	11.16	0.00083592 <---
Mantel-Haenszel:	11.04	0.00088999 <---
Yates corrected:	9.69	0.00185088 <---

ECOPAPGR	DELTAGR >= 4	DELTAGR < 4	Total
< 30	17	59	76
>= 30 E < 45	7	12	19
>= 45	7	3	10
Total	31	74	105

Chi square = 10.23
Degrees of freedom = 2
p value = 0.00599710 <---

MEANS of ECT for each category of DELTAGR

DELTAGR	Obs	Total	Mean	Variance	Std Dev
>= 4	31	370	11.935	46.462	6.816
< 4	73	790	10.822	56.093	7.490
Difference			1.114		

DELTAGR	Minimum	25%ile	Median	75%ile	Maximum	Mode
>= 4	2.000	7.000	9.000	16.000	27.000	9.000
< 4	2.000	5.000	8.000	14.000	31.000	7.000

Mann-Whitney or Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups)
Kruskal-Wallis H (equivalent to Chi square) = 1.374
Degrees of freedom = 1
p value = 0.241115

TCTOTGR	SCL70 N	SCL70 P	Total
< 6	47	5	52
>= 6	28	20	48
Total	75	25	100

	Chi-Squares	P-values
Uncorrected:	13.68	0.00021730 <---
Mantel-Haenszel:	13.54	0.00023372 <---
Yates corrected:	12.02	0.00052654 <---

ECOPAPGR	SCL70 N	SCL70 P	Total
< 30	62	16	78
>= 30 E < 45	12	9	21
>= 45	8	3	11
Total	82	28	110

Chi square = 4.37
Degrees of freedom = 2
p value = 0.11221524

Modelo 1: 10 variáveis independentes, excluindo-se os 5 valores em branco (Stepwise)

```
      Total number of cases:      105 (Unweighted)
      Number of selected cases:   105
      Number of unselected cases: 0

      Number of selected cases:                 105
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 105


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                          Parameter
             Value   Freq  Coding
                             (1)    (2)
FANA
                 0     15   ,000   ,000
                 1     11  1,000   ,000
                 2     79   ,000  1,000
ECTA
                 0     28   ,000
                 1     77  1,000
RACAA
                 0     75   ,000
                 1     30  1,000
IDADEA
                 1     77  1,000
                 0     28   ,000
SCL70A
                 0     77   ,000
                 1     28  1,000
DISPA
                 0     87   ,000
                 1     18  1,000
ECOPAPA
                 0     74   ,000
                 1     31  1,000
CVFA
                 0     60   ,000
                 1     45  1,000
RXFIPA
                 0     73   ,000
                 1     32  1,000
SEXOA
                 1     92  1,000
                 0     13   ,000
```

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   121,78219

* Constant is included in the model.

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed 0	0	77	0	100,00%
1	1	28	0	,00%
			Overall	73,33%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Constant	-1,0116	,2207	21,0125	1	,0000		

Beginning Block Number 1. Method: Forward Stepwise (WALD)

---------- Variables not in the Equation ----------
Residual Chi Square 21,847 with 11 df Sig = ,0256

Variable	Score	df	Sig	R
SEXOA(1)	,9657	1	,3258	,0000
RACAA(1)	2,1477	1	,1428	,0348
IDADEA(1)	7,4424	1	,0064	,2114
FANA	3,6272	2	,1631	,0000
FANA(1)	,0023	1	,9617	,0000
FANA(2)	2,2493	1	,1337	,0452
SCL70A(1)	3,1091	1	,0779	,0954
DISPA(1)	9,2712	1	,0023	,2443
RXFIPA(1)	4,5858	1	,0322	,1457
CVFA(1)	3,1818	1	,0745	,0985
ECOPAPA(1)	5,2440	1	,0220	,1632
ECTA(1)	1,5153	1	,2183	,0000

```
Variable(s) Entered on Step Number
1..       DISPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          113,439
 Goodness of Fit            104,999

                     Chi-Square    df Significance

 Model Chi-Square         8,344     1        ,0039
 Improvement              8,344     1        ,0039

Classification Table for TCAMA
                 Predicted
                 0       1      Percent Correct
                  0  |    1
Observed      +-------+-------+
   0     0    |   69  |    8  |   89,61%
              +-------+-------+
   1     1    |   18  |   10  |   35,71%
              +-------+-------+
                        Overall  75,24%

---------------------- Variables in the Equation -----------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

DISPA(1)       1,5669     ,5432   8,3209     1    ,0039   ,2278   4,7916
Constant      -1,3437     ,2647  25,7764     1    ,0000


--------------- Variables not in the Equation ------------------
Residual Chi Square     13,988 with     10 df     Sig =  ,1736

Variable             Score    df      Sig       R

SEXOA(1)              ,5582     1    ,4550   ,0000
RACAA(1)             3,0719     1    ,0797   ,0938
IDADEA(1)            7,4339     1    ,0064   ,2112
FANA                 3,5382     2    ,1705   ,0000
 FANA(1)              ,0004     1    ,9839   ,0000
 FANA(2)             2,2202     1    ,1362   ,0425
SCL70A(1)            1,2064     1    ,2720   ,0000
RXFIPA(1)            1,0246     1    ,3114   ,0000
CVFA(1)              ,5545     1    ,4565   ,0000
ECOPAPA(1)           2,1117     1    ,1462   ,0303
ECTA(1)              1,7536     1    ,1854   ,0000
```

Variable(s) Entered on Step Number
2.. IDADEA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	104,607
Goodness of Fit	115,299

	Chi-Square	df	Significance
Model Chi-Square	17,176	2	,0002
Improvement	8,832	1	,0030

Classification Table for TCAMA

Observed		Predicted 0	Predicted 1	Percent Correct
		0	1	
0	0	73	4	94,81%
1	1	18	10	35,71%
			Overall	79,05%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	1,9683	,7998	6,0568	1	,0139	,1825	7,1583
DISPA(1)	1,6475	,5839	7,9625	1	,0048	,2213	5,1940
Constant	-2,9769	,7829	14,4564	1	,0001		

---------- Variables not in the Equation ----------
Residual Chi Square 6,858 with 9 df Sig = ,6519

Variable	Score	df	Sig	R
SEXOA(1)	,7875	1	,3749	,0000
RACAA(1)	2,8755	1	,0899	,0848
FANA	2,1280	2	,3451	,0000
FANA(1)	,2688	1	,6042	,0000
FANA(2)	1,7439	1	,1866	,0000
SCL70A(1)	,2444	1	,6210	,0000
RXFIPA(1)	,2914	1	,5893	,0000
CVFA(1)	1,0343	1	,3092	,0000
ECOPAPA(1)	,5271	1	,4678	,0000
ECTA(1)	1,7199	1	,1897	,0000

No more variables can be deleted or added.

Modelo 2: 6 variáveis independentes, com todos os registros (Stepwise)

```
Total number of cases:      110 (Unweighted)
Number of selected cases:   110
Number of unselected cases: 0

Number of selected cases:                 110
Number rejected because of missing data:  0
Number of cases included in the analysis: 110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)	(2)
FANA				
	0	15	,000	,000
	1	12	1,000	,000
	2	83	,000	1,000
DISPA				
	0	91	,000	
	1	19	1,000	
ECOPAPA				
	0	78	,000	
	1	32	1,000	
RXFIPA				
	0	77	,000	
	1	33	1,000	
RACAA				
	0	76	,000	
	1	34	1,000	
IDADEA				
	1	82	1,000	
	0	28	,000	

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   130,82571

* Constant is included in the model.

Estimation terminated at iteration number 3 because
parameter estimates changed by less than ,001

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed 0	0	79	0	100,00%
Observed 1	1	31	0	,00%
			Overall	71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Constant	-,9355	,2119	19,4826	1	,0000		

Beginning Block Number 1. Method: Forward Stepwise (WALD)

---------- Variables not in the Equation ----------
Residual Chi Square 23,297 with 7 df Sig = ,0015

Variable	Score	df	Sig	R
IDADEA(1)	8,2145	1	,0042	,2180
DISPA(1)	10,0183	1	,0015	,2476
ECOPAPA(1)	5,4041	1	,0201	,1613
RXFIPA(1)	4,7248	1	,0297	,1443
RACAA(1)	4,1057	1	,0427	,1269
FANA	4,2660	2	,1185	,0451
FANA(1)	,0674	1	,7952	,0000
FANA(2)	3,1589	1	,0755	,0941

```
Variable(s) Entered on Step Number
1..       DISPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          121,711
 Goodness of Fit            110,000

                     Chi-Square    df Significance

 Model Chi-Square         9,115     1        ,0025
 Improvement              9,115     1        ,0025

Classification Table for TCAMA
                 Predicted
                 0       1      Percent Correct
                  0  |    1
Observed     +-------+-------+
   0     0   |   71  |    8  |   89,87%
             +-------+-------+
   1     1   |   20  |   11  |   35,48%
             +-------+-------+
                       Overall  74,55%

---------------------- Variables in the Equation -----------------------

Variable           B      S.E.     Wald    df      Sig       R   Exp(B)

DISPA(1)      1,5854     ,5291   8,9769     1    ,0027   ,2309   4,8812
Constant     -1,2669     ,2531  25,0473     1    ,0000


--------------- Variables not in the Equation ------------------
Residual Chi Square     14,640 with      6 df     Sig =  ,0233

Variable            Score    df      Sig       R

IDADEA(1)          8,2247     1    ,0041   ,2181
ECOPAPA(1)         2,3332     1    ,1266   ,0505
RXFIPA(1)           ,8500     1    ,3565   ,0000
RACAA(1)           5,2233     1    ,0223   ,1570
FANA               4,1546     2    ,1253   ,0344
 FANA(1)            ,0645     1    ,7996   ,0000
 FANA(2)           3,0566     1    ,0804   ,0899
```

```
Variable(s) Entered on Step Number
2..       IDADEA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          111,876
 Goodness of Fit            120,664

                     Chi-Square    df Significance

 Model Chi-Square        18,950     2        ,0001
 Improvement              9,835     1        ,0017

Classification Table for TCAMA
                 Predicted
                 0       1      Percent Correct
                  0  |    1
Observed      +-------+-------+
   0     0    |   75  |    4  |   94,94%
              +-------+-------+
   1     1    |   20  |   11  |   35,48%
              +-------+-------+
                        Overall  78,18%

---------------------- Variables in the Equation ------------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

IDADEA(1)      2,0500     ,7981   6,5968     1    ,0102   ,1874   7,7677
DISPA(1)       1,6767     ,5719   8,5939     1    ,0034   ,2245   5,3477
Constant      -2,9879     ,7833  14,5511     1    ,0001


--------------- Variables not in the Equation -----------------
Residual Chi Square      6,980 with      5 df     Sig =  ,2221

Variable            Score    df      Sig       R

ECOPAPA(1)           ,6727     1    ,4121   ,0000
RXFIPA(1)            ,1993     1    ,6553   ,0000
RACAA(1)            4,6375     1    ,0313   ,1420
FANA                2,7655     2    ,2509   ,0000
 FANA(1)             ,6484     1    ,4207   ,0000
 FANA(2)            2,4922     1    ,1144   ,0613
```

Variable(s) Entered on Step Number
3.. RACAA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	107,332
Goodness of Fit	120,479

	Chi-Square	df	Significance
Model Chi-Square	23,494	3	,0000
Improvement	4,544	1	,0330

Classification Table for TCAMA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	75	4	94,94%
1	1	20	11	35,48%
			Overall	78,18%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	**2,0505**	**,8138**	**6,3489**	**1**	**,0117**	**,1823**	**7,7719**
DISPA(1)	**1,8336**	**,5936**	**9,5402**	**1**	**,0020**	**,2401**	**6,2562**
RACAA(1)	**1,0502**	**,4967**	**4,4712**	**1**	**,0345**	**,1374**	**2,8584**
Constant	**-3,3969**	**,8374**	**16,4549**	**1**	**,0001**		

---------- Variables not in the Equation ----------
Residual Chi Square 2,583 with 4 df Sig = ,6299

Variable	Score	df	Sig	R
ECOPAPA(1)	1,0912	1	,2962	,0000
RXFIPA(1)	,2429	1	,6221	,0000
FANA	1,8972	2	,3873	,0000
FANA(1)	,2892	1	,5908	,0000
FANA(2)	1,5864	1	,2078	,0000

No more variables can be deleted or added.

Modelo 3: 5 variáveis independentes, com todos os registros (Enter)

```
      Total number of cases:      110 (Unweighted)
      Number of selected cases:   110
      Number of unselected cases: 0

      Number of selected cases:                 110
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 110


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
IDADEA
                  1     82  1,000
                  0     28   ,000
```

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	120,958
Goodness of Fit	109,996

	Chi-Square	df	Significance
Model Chi-Square	9,868	1	,0017
Improvement	9,868	1	,0017

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed 0	0	79	0	100,00%
1	1	31	0	,00%
			Overall	71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	1,9618	,7692	6,5039	1	,0108	,1855	7,1121
Constant	-2,5648	,7337	12,2182	1	,0005		

```
      Total number of cases:      110 (Unweighted)
      Number of selected cases:   110
      Number of unselected cases: 0

      Number of selected cases:                 110
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 110


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
DISPA
                  0     91     ,000
                  1     19    1,000
IDADEA
                  1     82    1,000
                  0     28     ,000
```

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1..   IDADEA
          DISPA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	111,876
Goodness of Fit	120,664

	Chi-Square	df	Significance
Model Chi-Square	18,950	2	,0001
Improvement	18,950	2	,0001

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed 0	0	75	4	94,94%
1	1	20	11	35,48%
			Overall	78,18%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	2,0500	,7981	6,5968	1	,0102	,1874	7,7677
DISPA(1)	1,6767	,5719	8,5939	1	,0034	,2245	5,3477
Constant	-2,9879	,7833	14,5511	1	,0001		

```
      Total number of cases:      110 (Unweighted)
      Number of selected cases:   110
      Number of unselected cases: 0

      Number of selected cases:                 110
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 110


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
ECOPAPA
                  0     78     ,000
                  1     32    1,000
DISPA
                  0     91     ,000
                  1     19    1,000
IDADEA
                  1     82    1,000
                  0     28     ,000
```

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA
     DISPA
     ECOPAPA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	111,218
Goodness of Fit	121,299

	Chi-Square	df	Significance
Model Chi-Square	19,608	3	,0002
Improvement	19,608	3	,0002

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	75	4	94,94%
	1	20	11	35,48%
			Overall	78,18%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	1,9410	,8070	5,7857	1	,0162	,1701	6,9658
DISPA(1)	1,5422	,5945	6,7303	1	,0095	,1901	4,6748
ECOPAPA(1)	,4129	,5048	,6689	1	,4134	,0000	1,5112
Constant	-3,0053	,7819	14,7728	1	,0001		

```
      Total number of cases:      110 (Unweighted)
      Number of selected cases:   110
      Number of unselected cases: 0

      Number of selected cases:                 110
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 110


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
RXFIPA
                  0     77     ,000
                  1     33    1,000
DISPA
                  0     91     ,000
                  1     19    1,000
IDADEA
                  1     82    1,000
                  0     28     ,000
```

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA
DISPA
RXFIPA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	111,680
Goodness of Fit	117,722

	Chi-Square	df	Significance
Model Chi-Square	19,146	3	,0003
Improvement	19,146	3	,0003

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	75	4	94,94%
	1	20	11	35,48%
			Overall	78,18%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	2,0094	,8018	6,2805	1	,0122	,1809	7,4588
DISPA(1)	1,5510	,6356	5,9551	1	,0147	,1739	4,7161
RXFIPA(1)	,2404	,5390	,1989	1	,6556	,0000	1,2718
Constant	-3,0080	,7839	14,7256	1	,0001		

```
      Total number of cases:      110 (Unweighted)
      Number of selected cases:   110
      Number of unselected cases: 0

      Number of selected cases:                 110
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 110


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
RACAA
                  0     76     ,000
                  1     34    1,000
DISPA
                  0     91     ,000
                  1     19    1,000
IDADEA
                  1     82    1,000
                  0     28     ,000
```

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA
     DISPA
     RACAA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	107,332
Goodness of Fit	120,479

	Chi-Square	df	Significance
Model Chi-Square	23,494	3	,0000
Improvement	23,494	3	,0000

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	75	4	94,94%
	1	20	11	35,48%
			Overall	78,18%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	**2,0505**	**,8138**	**6,3489**	**1**	**,0117**	**,1823**	**7,7719**
DISPA(1)	**1,8336**	**,5936**	**9,5402**	**1**	**,0020**	**,2401**	**6,2562**
RACAA(1)	**1,0502**	**,4967**	**4,4712**	**1**	**,0345**	**,1374**	**2,8584**
Constant	**-3,3969**	**,8374**	**16,4549**	**1**	**,0001**		

Modelo 1: 13 variáveis independentes, excluindo-se os 17 valores em branco (Stepwise)

```
      Total number of cases:      93 (Unweighted)
      Number of selected cases:   93
      Number of unselected cases: 0

      Number of selected cases:                 93
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 93


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1

                              Parameter
              Value   Freq    Coding
                                (1)    (2)
FANA
                  0     15    ,000   ,000
                  1      9   1,000   ,000
                  2     69    ,000  1,000
ECTA
                  0     24    ,000
                  1     69   1,000
IDADEA
                  1     67   1,000
                  0     26    ,000
SCL70A
                  0     70    ,000
                  1     23   1,000
DISPA
                  0     82    ,000
                  1     11   1,000
RXFIPA
                  0     66    ,000
                  1     27   1,000
CVFA
                  0     55    ,000
                  1     38   1,000
TCVFB
                  0     71    ,000
                  1     22   1,000
ECOPAPA
                  0     66    ,000
                  1     27   1,000
TCTOTA
                  0     49    ,000
                  1     44   1,000
TCFAVB
                  0     82    ,000
                  1     11   1,000
TCRETB
                  0     63    ,000
                  1     30   1,000
RACAA
                  0     67    ,000
                  1     26   1,000
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   110,21367

* Constant is included in the model.

Estimation terminated at iteration number 3 because
parameter estimates changed by less than ,001

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed 0	0	67	0	100,00%
1	1	26	0	,00%
		Overall		72,04%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Constant	-,9466	,2311	16,7840	1	,0000		

Beginning Block Number 1. Method: Forward Stepwise (WALD)

---------- Variables not in the Equation ----------
Residual Chi Square 43,323 with 14 df Sig = ,0001

Variable	Score	df	Sig	R
RACAA(1)	1,9772	1	,1597	,0000
IDADEA(1)	7,3583	1	,0067	,2205
FANA	2,2679	2	,3218	,0000
FANA(1)	,1627	1	,6867	,0000
FANA(2)	2,0473	1	,1525	,0207
SCL70A(1)	21,0633	1	,0000	,4159
DISPA(1)	17,9693	1	,0000	,3806
RXFIPA(1)	18,5085	1	,0000	,3870
CVFA(1)	15,5011	1	,0001	,3500
TCVFB(1)	6,9520	1	,0084	,2120
TCRETB(1)	14,1592	1	,0002	,3322
TCFAVB(1)	,4377	1	,5082	,0000
TCTOTA(1)	9,6109	1	,0019	,2628
ECOPAPA(1)	5,1348	1	,0235	,1687
ECTA(1)	3,8372	1	,0501	,1291

```
Variable(s) Entered on Step Number
1..       SCL70A

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          90,606
 Goodness of Fit            92,987

                     Chi-Square     df Significance

 Model Chi-Square         19,607      1         ,0000
 Improvement              19,607      1         ,0000

Classification Table for DELTAA
                 Predicted
                 0         1       Percent Correct
                  0   |     1
Observed      +-------+-------+
   0     0    |   59  |    8  |    88,06%
              +-------+-------+
   1     1    |   11  |   15  |    57,69%
              +-------+-------+
                        Overall   79,57%

---------------------- Variables in the Equation ------------------------

Variable            B        S.E.      Wald     df       Sig        R    Exp(B)

SCL70A(1)       2,3080      ,5473   17,7853      1     ,0000    ,3785   10,0542
Constant       -1,6794      ,3284   26,1530      1     ,0000


--------------- Variables not in the Equation ------------------
Residual Chi Square     27,186 with     13 df     Sig =  ,0117

Variable            Score     df       Sig        R

RACAA(1)           4,1702      1     ,0411    ,1403
IDADEA(1)          4,8299      1     ,0280    ,1602
FANA                ,3596      2     ,8354    ,0000
 FANA(1)            ,3298      1     ,5658    ,0000
 FANA(2)            ,0254      1     ,8735    ,0000
DISPA(1)          11,4118      1     ,0007    ,2922
RXFIPA(1)          6,3086      1     ,0120    ,1977
CVFA(1)            8,4060      1     ,0037    ,2411
TCVFB(1)           1,7383      1     ,1874    ,0000
TCRETB(1)          6,5896      1     ,0103    ,2041
TCFAVB(1)           ,0258      1     ,8725    ,0000
TCTOTA(1)          2,4937      1     ,1143    ,0669
ECOPAPA(1)         2,6362      1     ,1045    ,0760
ECTA(1)            2,8620      1     ,0907    ,0884
```

```
Variable(s) Entered on Step Number
2..       DISPA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          79,511
 Goodness of Fit            90,257

                    Chi-Square    df Significance

 Model Chi-Square        30,703     2        ,0000
 Improvement             11,096     1        ,0009

Classification Table for DELTAA
                 Predicted
                 0       1      Percent Correct
                  0  |    1
Observed     +-------+-------+
   0     0   |   57  |   10  |   85,07%
            +-------+-------+
   1     1   |    8  |   18  |   69,23%
            +-------+-------+
                      Overall  80,65%

---------------------- Variables in the Equation ------------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

SCL70A(1)      2,2029     ,5940  13,7517     1    ,0002   ,3265   9,0509
DISPA(1)       2,6893     ,8982   8,9639     1    ,0028   ,2514  14,7213
Constant      -2,0098     ,3780  28,2682     1    ,0000


--------------- Variables not in the Equation -----------------
Residual Chi Square     16,917 with     12 df     Sig =  ,1527

Variable            Score    df      Sig       R

RACAA(1)           7,1657     1    ,0074   ,2165
IDADEA(1)          5,0118     1    ,0252   ,1653
FANA                ,6097     2    ,7372   ,0000
 FANA(1)            ,1677     1    ,6821   ,0000
 FANA(2)            ,1265     1    ,7221   ,0000
RXFIPA(1)          2,6164     1    ,1058   ,0748
CVFA(1)            4,8168     1    ,0282   ,1599
TCVFB(1)           1,7025     1    ,1920   ,0000
TCRETB(1)          3,2179     1    ,0728   ,1051
TCFAVB(1)           ,3699     1    ,5430   ,0000
TCTOTA(1)          1,0090     1    ,3152   ,0000
ECOPAPA(1)          ,8399     1    ,3594   ,0000
ECTA(1)            2,7972     1    ,0944   ,0851
```

```
Variable(s) Entered on Step Number
3..       RACAA

Estimation terminated at iteration number 5 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          72,469
 Goodness of Fit            94,525

                    Chi-Square    df Significance

 Model Chi-Square        37,745     3        ,0000
 Improvement              7,042     1        ,0080

Classification Table for DELTAA
                Predicted
                0       1      Percent Correct
                 0  |    1
Observed     +-------+-------+
   0     0   |   65  |    2  |   97,01%
            +-------+-------+
   1     1   |   14  |   12  |   46,15%
            +-------+-------+
                      Overall  82,80%

---------------------- Variables in the Equation ------------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

RACAA(1)        1,8212     ,7345   6,1478     1    ,0132   ,1940   6,1791
SCL70A(1)       2,7542     ,7316  14,1708     1    ,0002   ,3323  15,7081
DISPA(1)        3,4013    1,0288  10,9298     1    ,0009   ,2846  30,0039
Constant       -2,8644     ,6085  22,1564     1    ,0000


--------------- Variables not in the Equation -----------------
Residual Chi Square     11,428 with     11 df     Sig =  ,4081

Variable            Score    df      Sig       R

IDADEA(1)          4,4102     1    ,0357   ,1479
FANA                ,9139     2    ,6332   ,0000
 FANA(1)            ,7922     1    ,3734   ,0000
 FANA(2)            ,0150     1    ,9026   ,0000
RXFIPA(1)          2,2935     1    ,1299   ,0516
CVFA(1)            2,9181     1    ,0876   ,0913
TCVFB(1)            ,7252     1    ,3945   ,0000
TCRETB(1)          1,9413     1    ,1635   ,0000
TCFAVB(1)           ,2068     1    ,6493   ,0000
TCTOTA(1)          1,0387     1    ,3081   ,0000
ECOPAPA(1)         1,3839     1    ,2394   ,0000
ECTA(1)            1,2470     1    ,2641   ,0000
```

```
Variable(s) Entered on Step Number
4..       IDADEA

Estimation terminated at iteration number 5 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          67,377
 Goodness of Fit            83,270

                     Chi-Square    df Significance

 Model Chi-Square        42,837     4        ,0000
 Improvement              5,092     1        ,0240

Classification Table for DELTAA
                 Predicted
                 0       1      Percent Correct
                  0  |    1
Observed      +-------+-------+
   0     0    |   60  |    7  |   89,55%
              +-------+-------+
   1     1    |    8  |   18  |   69,23%
              +-------+-------+
                        Overall  83,87%

---------------------- Variables in the Equation ------------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

RACAA(1)        1,7834     ,7571   5,5483     1    ,0185   ,1794   5,9499
IDADEA(1)       1,9440    1,0134   3,6801     1    ,0551   ,1235   6,9869
SCL70A(1)       2,5953     ,7451  12,1308     1    ,0005   ,3032  13,4006
DISPA(1)        3,5153    1,0757  10,6791     1    ,0011   ,2806  33,6271
Constant       -4,4211    1,1246  15,4544     1    ,0001

---------------- Variables not in the Equation -----------------
Residual Chi Square      7,176 with     10 df     Sig =  ,7087

Variable            Score    df      Sig       R

FANA                 ,2540     2    ,8807   ,0000
 FANA(1)             ,2000     1    ,6547   ,0000
 FANA(2)             ,2101     1    ,6467   ,0000
RXFIPA(1)           2,3845     1    ,1225   ,0591
CVFA(1)             4,3892     1    ,0362   ,1472
TCVFB(1)             ,5276     1    ,4676   ,0000
TCRETB(1)            ,7558     1    ,3846   ,0000
TCFAVB(1)            ,0007     1    ,9783   ,0000
TCTOTA(1)            ,7844     1    ,3758   ,0000
ECOPAPA(1)           ,4421     1    ,5061   ,0000
ECTA(1)             1,9014     1    ,1679   ,0000
```

Variable(s) Entered on Step Number
5.. CVFA

Estimation terminated at iteration number 5 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	63,112		
Goodness of Fit	70,408		
	Chi-Square	df	Significance
Model Chi-Square	47,101	5	,0000
Improvement	4,265	1	,0389

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	60	7	89,55%
1	1	9	17	65,38%
			Overall	82,80%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
RACAA(1)	1,5916	,7898	4,0611	1	,0439	,1368	4,9116
IDADEA(1)	2,2864	1,0691	4,5737	1	,0325	,1528	9,8392
SCL70A(1)	2,2515	,7851	8,2249	1	,0041	,2377	9,5021
DISPA(1)	3,1852	1,0981	8,4143	1	,0037	,2412	24,1729
CVFA(1)	1,3469	,6593	4,1738	1	,0411	,1404	3,8455
Constant	-5,1183	1,2532	16,6815	1	,0000		

---------- Variables not in the Equation ----------
Residual Chi Square 3,016 with 9 df Sig = ,9637

Variable	Score	df	Sig	R
FANA	,7362	2	,6920	,0000
FANA(1)	,6536	1	,4188	,0000
FANA(2)	,5262	1	,4682	,0000
RXFIPA(1)	,2041	1	,6514	,0000
TCVFB(1)	,1088	1	,7415	,0000
TCRETB(1)	,0152	1	,9017	,0000
TCFAVB(1)	,4433	1	,5055	,0000
TCTOTA(1)	,0359	1	,8497	,0000
ECOPAPA(1)	,0844	1	,7715	,0000
ECTA(1)	,9845	1	,3211	,0000

No more variables can be deleted or added.

Modelo 2: 8 variáveis independentes, excluindo-se os 8 valores em branco (Stepwise)

```
      Total number of cases:      102 (Unweighted)
      Number of selected cases:   102
      Number of unselected cases: 0

      Number of selected cases:                 102
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 102


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                          Parameter
              Value   Freq  Coding
                              (1)    (2)
FANA
                  0     15   ,000   ,000
                  1     10  1,000   ,000
                  2     77   ,000  1,000
ECOPAPA
                  0     73   ,000
                  1     29  1,000
IDADEA
                  1     75  1,000
                  0     27   ,000
SCL70A
                  0     76   ,000
                  1     26  1,000
DISPA
                  0     87   ,000
                  1     15  1,000
CVFA
                  0     59   ,000
                  1     43  1,000
RXFIPA
                  0     72   ,000
                  1     30  1,000
RACAA
                  0     72   ,000
                  1     30  1,000
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   123,58269

* Constant is included in the model.

Estimation terminated at iteration number 3 because
parameter estimates changed by less than ,001

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed 0	0	72	0	100,00%
1	1	30	0	,00%
			Overall	70,59%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Constant	-,8755	,2173	16,2306	1	,0001		

Beginning Block Number 1. Method: Forward Stepwise (WALD)

---------- Variables not in the Equation ----------
Residual Chi Square 48,279 with 9 df Sig = ,0000

Variable	Score	df	Sig	R
RACAA(1)	1,0775	1	,2993	,0000
IDADEA(1)	5,9236	1	,0149	,1782
FANA	2,9977	2	,2234	,0000
FANA(1)	,4730	1	,4916	,0000
FANA(2)	2,8692	1	,0903	,0839
SCL70A(1)	21,7498	1	,0000	,3998
DISPA(1)	27,7680	1	,0000	,4566
RXFIPA(1)	23,5552	1	,0000	,4176
CVFA(1)	20,7565	1	,0000	,3896
ECOPAPA(1)	6,9453	1	,0084	,2000

```
Variable(s) Entered on Step Number
1..       DISPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          97,730
 Goodness of Fit           101,988

                     Chi-Square    df Significance

 Model Chi-Square         25,853     1        ,0000
 Improvement              25,853     1        ,0000

Classification Table for DELTAA
                 Predicted
                 0       1      Percent Correct
                  0  |    1
Observed      +-------+-------+
   0     0    |   70  |    2  |   97,22%
              +-------+-------+
   1     1    |   17  |   13  |   43,33%
              +-------+-------+
                        Overall  81,37%

---------------------- Variables in the Equation -----------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

DISPA(1)       3,2862     ,8060  16,6225     1    ,0000   ,3440  26,7400
Constant      -1,4152     ,2704  27,3969     1    ,0000


--------------- Variables not in the Equation ------------------
Residual Chi Square     28,433 with      8 df     Sig =  ,0004

Variable             Score    df      Sig       R

RACAA(1)            3,0455     1    ,0810   ,0920
IDADEA(1)           6,1160     1    ,0134   ,1825
FANA                3,2567     2    ,1963   ,0000
 FANA(1)             ,2840     1    ,5941   ,0000
 FANA(2)            2,9382     1    ,0865   ,0871
SCL70A(1)          16,0319     1    ,0001   ,3370
RXFIPA(1)          12,3860     1    ,0004   ,2899
CVFA(1)            10,4798     1    ,0012   ,2619
ECOPAPA(1)          1,8524     1    ,1735   ,0000
```

Variable(s) Entered on Step Number
2.. SCL70A

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	83,530
Goodness of Fit	97,447

	Chi-Square	df	Significance
Model Chi-Square	40,052	2	,0000
Improvement	14,199	1	,0002

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	61	11	84,72%
	1	8	22	73,33%
			Overall	81,37%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SCL70A(1)	2,1386	,5827	13,4698	1	,0002	,3046	8,4876
DISPA(1)	3,2050	,8602	13,8834	1	,0002	,3101	24,6564
Constant	-2,0735	,3762	30,3820	1	,0000		

---------- Variables not in the Equation ----------
Residual Chi Square 14,250 with 7 df Sig = ,0469

Variable	Score	df	Sig	R
RACAA(1)	5,3837	1	,0203	,1655
IDADEA(1)	3,9514	1	,0468	,1257
FANA	,7151	2	,6994	,0000
FANA(1)	,0609	1	,8051	,0000
FANA(2)	,2917	1	,5891	,0000
RXFIPA(1)	3,3280	1	,0681	,1037
CVFA(1)	6,0870	1	,0136	,1819
ECOPAPA(1)	1,1719	1	,2790	,0000

```
Variable(s) Entered on Step Number
3..       CVFA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood          77,762
 Goodness of Fit            94,123

                    Chi-Square    df Significance

 Model Chi-Square        45,821     3        ,0000
 Improvement              5,769     1        ,0163

Classification Table for DELTAA
                Predicted
                0       1      Percent Correct
                 0  |    1
Observed     +-------+-------+
   0     0   |   66  |    6  |   91,67%
            +-------+-------+
   1     1   |   11  |   19  |   63,33%
            +-------+-------+
                      Overall  83,33%

---------------------- Variables in the Equation ------------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

SCL70A(1)      1,9136     ,6122   9,7697     1    ,0018   ,2507   6,7774
DISPA(1)       2,8196     ,9027   9,7558     1    ,0018   ,2505  16,7695
CVFA(1)        1,3894     ,5839   5,6617     1    ,0173   ,1721   4,0123
Constant      -2,6326     ,4911  28,7380     1    ,0000


--------------- Variables not in the Equation -----------------
Residual Chi Square      9,031 with      6 df     Sig =  ,1718

Variable            Score    df      Sig       R

RACAA(1)           4,2016     1    ,0404   ,1335
IDADEA(1)          5,3516     1    ,0207   ,1647
FANA               1,2599     2    ,5326   ,0000
 FANA(1)            ,6279     1    ,4281   ,0000
 FANA(2)            ,0593     1    ,8076   ,0000
RXFIPA(1)           ,2591     1    ,6107   ,0000
ECOPAPA(1)          ,1679     1    ,6820   ,0000
```

Variable(s) Entered on Step Number
4.. IDADEA

Estimation terminated at iteration number 5 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	71,605		
Goodness of Fit	86,231		
	Chi-Square	df	Significance
Model Chi-Square	51,978	4	,0000
Improvement	6,157	1	,0131

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	67	5	93,06%
1	1	11	19	63,33%
			Overall	84,31%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	**2,0659**	**,9649**	**4,5846**	**1**	**,0323**	**,1446**	**7,8928**
SCL70A(1)	**1,6690**	**,6411**	**6,7768**	**1**	**,0092**	**,1966**	**5,3069**
DISPA(1)	**3,0554**	**,9703**	**9,9154**	**1**	**,0016**	**,2531**	**21,2305**
CVFA(1)	**1,6651**	**,6227**	**7,1497**	**1**	**,0075**	**,2041**	**5,2864**
Constant	**-4,4091**	**1,0640**	**17,1733**	**1**	**,0000**		

---------- Variables not in the Equation ----------
Residual Chi Square 4,024 with 5 df Sig = ,5460

Variable	Score	df	Sig	R
RACAA(1)	3,3104	1	,0688	,1030
FANA	,2317	2	,8906	,0000
FANA(1)	,0992	1	,7527	,0000
FANA(2)	,0046	1	,9462	,0000
RXFIPA(1)	,0126	1	,9106	,0000
ECOPAPA(1)	,1858	1	,6664	,0000

No more variables can be deleted or added.

Modelo 3: 6 variáveis independentes, excluindo-se os 5/8 valores em branco (Enter)

```
      Total number of cases:      105 (Unweighted)
      Number of selected cases:   105
      Number of unselected cases: 0

      Number of selected cases:                 105
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 105


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                           Parameter
              Value   Freq  Coding
                              (1)
DISPA
                  0     89   ,000
                  1     16  1,000
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1..   DISPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	98,865
Goodness of Fit	104,981

	Chi-Square	df	Significance
Model Chi-Square	28,558	1	,0000
Improvement	28,558	1	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed 0	0	72	2	97,30%
1	1	17	14	45,16%
			Overall	81,90%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	3,3880	,8022	17,8357	1	,0000	,3525	29,6057
Constant	-1,4434	,2696	28,6538	1	,0000		

```
 Total number of cases:      105 (Unweighted)
Number of selected cases:   105
Number of unselected cases: 0

Number of selected cases:                 105
Number rejected because of missing data:  0
Number of cases included in the analysis: 105
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
RXFIPA			
	0	74	,000
	1	31	1,000
DISPA			
	0	89	,000
	1	16	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1..   DISPA
          RXFIPA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	87,571
Goodness of Fit	106,273

	Chi-Square	df	Significance
Model Chi-Square	39,852	2	,0000
Improvement	39,852	2	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	72	2	97,30%
1	1	17	14	45,16%
			Overall	81,90%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	2,8304	,8487	11,1218	1	,0009	,2676	16,9516
RXFIPA(1)	1,8624	,5545	11,2799	1	,0008	,2699	6,4393
Constant	-2,0159	,3622	30,9741	1	,0000		

```
      Total number of cases:      105 (Unweighted)
      Number of selected cases:   105
      Number of unselected cases: 0

      Number of selected cases:                 105
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 105


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
SCL70A
                  0     79     ,000
                  1     26    1,000
RXFIPA
                  0     74     ,000
                  1     31    1,000
DISPA
                  0     89     ,000
                  1     16    1,000
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1..   DISPA
          RXFIPA
          SCL70A

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	81,124
Goodness of Fit	101,382

	Chi-Square	df	Significance
Model Chi-Square	46,299	3	,0000
Improvement	46,299	3	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed 0	0	68	6	91,89%
1	1	10	21	67,74%
			Overall	84,76%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	2,9638	,8784	11,3843	1	,0007	,2714	19,3711
RXFIPA(1)	1,1865	,6313	3,5326	1	,0602	,1097	3,2755
SCL70A(1)	1,6419	,6462	6,4554	1	,0111	,1870	5,1648
Constant	-2,3024	,4064	32,0922	1	,0000		

```
      Total number of cases:      105 (Unweighted)
      Number of selected cases:   105
      Number of unselected cases: 0

      Number of selected cases:                 105
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 105


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
SCL70A
                  0     79     ,000
                  1     26    1,000
DISPA
                  0     89     ,000
                  1     16    1,000
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood   127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1..   DISPA
          SCL70A

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	84,523
Goodness of Fit	100,133

	Chi-Square	df	Significance
Model Chi-Square	42,900	2	,0000
Improvement	42,900	2	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	63	11	85,14%
1	1	8	23	74,19%
			Overall	81,90%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	3,3733	,8539	15,6073	1	,0001	,3268	29,1759
SCL70A(1)	2,1554	,5843	13,6091	1	,0002	,3018	8,6312
Constant	-2,0996	,3753	31,3007	1	,0000		

```
      Total number of cases:      102 (Unweighted)
      Number of selected cases:   102
      Number of unselected cases: 0

      Number of selected cases:                 102
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 102


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
CVFA
                  0     59     ,000
                  1     43    1,000
SCL70A
                  0     76     ,000
                  1     26    1,000
DISPA
                  0     87     ,000
                  1     15    1,000
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. DISPA
SCL70A
CVFA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	77,762
Goodness of Fit	94,123

	Chi-Square	df	Significance
Model Chi-Square	45,821	3	,0000
Improvement	45,821	3	,0000

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	66	6	91,67%
1	1	11	19	63,33%
			Overall	83,33%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	2,8196	,9027	9,7558	1	,0018	,2505	16,7695
SCL70A(1)	1,9136	,6122	9,7697	1	,0018	,2507	6,7774
CVFA(1)	1,3894	,5839	5,6617	1	,0173	,1721	4,0123
Constant	-2,6326	,4911	28,7380	1	,0000		

```
Total number of cases:      102 (Unweighted)
Number of selected cases:   102
Number of unselected cases: 0

Number of selected cases:                 102
Number rejected because of missing data:  0
Number of cases included in the analysis: 102
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
IDADEA			
	1	75	1,000
	0	27	,000
SCL70A			
	0	76	,000
	1	26	1,000
CVFA			
	0	59	,000
	1	43	1,000
DISPA			
	0	87	,000
	1	15	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. DISPA
SCL70A
CVFA
IDADEA

Estimation terminated at iteration number 5 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	71,605		
Goodness of Fit	86,231		
	Chi-Square	df	Significance
Model Chi-Square	51,978	4	,0000
Improvement	51,978	4	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	67	5	93,06%
	1	11	19	63,33%
			Overall	84,31%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	**3,0554**	**,9703**	**9,9154**	**1**	**,0016**	**,2531**	**21,2305**
SCL70A(1)	**1,6690**	**,6411**	**6,7768**	**1**	**,0092**	**,1966**	**5,3069**
CVFA(1)	**1,6651**	**,6227**	**7,1497**	**1**	**,0075**	**,2041**	**5,2864**
IDADEA(1)	**2,0659**	**,9649**	**4,5846**	**1**	**,0323**	**,1446**	**7,8928**
Constant	**-4,4091**	**1,0640**	**17,1733**	**1**	**,0000**		

```
Total number of cases:      102 (Unweighted)
Number of selected cases:   102
Number of unselected cases: 0

Number of selected cases:                 102
Number rejected because of missing data:  0
Number of cases included in the analysis: 102
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
RACAA			
	0	72	,000
	1	30	1,000
SCL70A			
	0	76	,000
	1	26	1,000
CVFA			
	0	59	,000
	1	43	1,000
IDADEA			
	1	75	1,000
	0	27	,000
DISPA			
	0	87	,000
	1	15	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. DISPA
SCL70A
CVFA
IDADEA
RACAA

Estimation terminated at iteration number 5 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	68,328		
Goodness of Fit	76,242		
	Chi-Square	df	Significance
Model Chi-Square	55,254	5	,0000
Improvement	55,254	5	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	66	6	91,67%
1	1	11	19	63,33%
			Overall	83,33%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	3,4960	1,0454	11,1830	1	,0008	,2726	32,9824
SCL70A(1)	1,9796	,7120	7,7304	1	,0054	,2153	7,2402
CVFA(1)	1,5855	,6402	6,1339	1	,0133	,1829	4,8817
IDADEA(1)	1,9563	,9752	4,0244	1	,0448	,1280	7,0730
RACAA(1)	1,2525	,7098	3,1141	1	,0776	,0949	3,4992
Constant	-4,8432	1,1389	18,0838	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 2.60 (0.50 <OR< 17.99*)
+|    29  |    67  |    96
 +--------+--------+
-|     2  |    12  |    14
 +--------+--------+              Fisher exact: 2-tailed P-value: 0.3417869
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
SEXOA			
	1	96	1,000
	0	14	,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. SEXOA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	129,106
Goodness of Fit	109,995

	Chi-Square	df	Significance
Model Chi-Square	1,720	1	,1897
Improvement	1,720	1	,1897

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	79	0	100,00%
	1	31	0	,00%
			Overall	71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SEXOA(1)	,9538	,7953	1,4383	1	,2304	,0000	2,5956
Constant	-1,7912	,7636	5,5023	1	,0190		

```
     + Disease -
 +--------+--------+              Odds ratio = 2.43 (0.93 <OR< 6.35)
+|    14  |    20  |    34
 +--------+--------+                                Chi-Squares   P-values
-|    17  |    59  |    76                          -----------   --------
 +--------+--------+              Yates corrected:     3.23    0.0723455
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
RACAA			
	0	76	,000
	1	34	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. RACAA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	126,862
Goodness of Fit	110,000

	Chi-Square	df	Significance
Model Chi-Square	3,963	1	,0465
Improvement	3,963	1	,0465

Classification Table for TCAMA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	79	0	100,00%
1	1	31	0	,00%
			Overall	71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
RACAA(1)	,8876	,4441	3,9955	1	,0456	,1235	2,4294
Constant	-1,2443	,2753	20,4339	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 7.11 (1.47 <OR< 46.72*)
+|    29  |    53  |    82
 +--------+--------+                                Chi-Squares   P-values
-|     2  |    26  |    28                          -----------   --------
 +--------+--------+              Yates corrected:     6.88    0.0087202
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
IDADEA			
	1	82	1,000
	0	28	,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	120,958
Goodness of Fit	109,996

	Chi-Square	df	Significance
Model Chi-Square	9,868	1	,0017
Improvement	9,868	1	,0017

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	79	0	100,00%
1	1	31	0	,00%
			Overall	71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	1,9618	,7692	6,5039	1	,0108	,1855	7,1121
Constant	-2,5648	,7337	12,2182	1	,0005		

```
     + Disease -
 +--------+--------+              Odds ratio = 1.24 (0.43 <OR< 3.71)
+|    24  |    58  |    82
 +--------+--------+                                Chi-Squares   P-values
-|     7  |    21  |    28                          -----------   --------
 +--------+--------+              Yates corrected:     0.04    0.8491614
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TDA			
	1	82	1,000
	0	28	,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TDA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	130,635
Goodness of Fit	110,000

	Chi-Square	df	Significance
Model Chi-Square	,191	1	,6621
Improvement	,191	1	,6621

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	79	0	100,00%
	1	31	0	,00%
		Overall		71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TDA(1)	,2162	,4994	,1875	1	,6650	,0000	1,2414
Constant	-1,0986	,4364	6,3365	1	,0118		

```
     + Disease -
 +--------+--------+              Odds ratio = 1.23 (0.46 <OR< 3.31)
+|    10  |    22  |    32
 +--------+--------+                                Chi-Squares   P-values
-|    21  |    57  |    78                          -----------   --------
 +--------+--------+              Yates corrected:     0.05    0.8221110
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
FCA			
	0	78	,000
	1	32	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. FCA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	130,618
Goodness of Fit	110,000

	Chi-Square	df	Significance
Model Chi-Square	,207	1	,6488
Improvement	,207	1	,6488

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	79	0	100,00%
	1	31	0	,00%
		Overall		71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
FCA(1)	,2101	,4589	,2095	1	,6471	,0000	1,2338
Constant	-,9985	,2553	15,3010	1	,0001		

```
     + Disease -
 +--------+--------+              Odds ratio = 4.67 (0.33 <OR< 137.66*)
+|     3  |     9  |    12
 +--------+--------+
-|     1  |    14  |    15
 +--------+--------+              Fisher exact: 2-tailed P-value: 0.2940171
E      4       23       27
```

```
     + Disease -
 +--------+--------+              Odds ratio = 6.75 (0.85 <OR< 144.58*)
+|    27  |    56  |    83
 +--------+--------+
-|     1  |    14  |    15
 +--------+--------+              Fisher exact: 2-tailed P-value: 0.0599001
E     28       70       98
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)	(2)
FANA				
	0	15	,000	,000
	1	12	1,000	,000
	2	83	,000	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. FANA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	125,557		
Goodness of Fit	109,997		
	Chi-Square	df	Significance
Model Chi-Square	5,269	2	,0718
Improvement	5,269	2	,0718

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	79	0	100,00%
1	1	31	0	,00%
			Overall	71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
FANA			3,3906	2	,1835	,0000	
FANA(1)	1,5402	1,2311	1,5651	1	,2109	,0000	4,6654
FANA(2)	1,9093	1,0612	3,2372	1	,0720	,0972	6,7482
Constant	-2,6388	1,0350	6,5005	1	,0108		

```
     + Disease -
 +--------+--------+              Odds ratio = 2.01 (0.73 <OR< 5.48)
+|    11  |    17  |    28
 +--------+--------+                                Chi-Squares   P-values
-|    20  |    62  |    82                          -----------   --------
 +--------+--------+              Yates corrected:     1.61    0.2042990
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
SCL70A			
	0	82	,000
	1	28	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. SCL70A

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	128,629
Goodness of Fit	110,000

	Chi-Square	df	Significance
Model Chi-Square	2,197	1	,1383
Improvement	2,197	1	,1383

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	79	0	100,00%
1	1	31	0	,00%
			Overall	71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SCL70A(1)	,6961	,4646	2,2446	1	,1341	,0432	2,0059
Constant	-1,1314	,2572	19,3571	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 4.88 (1.55 <OR< 15.66)
+|    11  |     8  |    19
 +--------+--------+                                 Chi-Squares   P-values
-|    20  |    71  |    91                           -----------   --------
 +--------+--------+              Yates corrected:     8.32     0.0039162
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
DISPA			
	0	91	,000
	1	19	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. DISPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	121,711
Goodness of Fit	110,000

	Chi-Square	df	Significance
Model Chi-Square	9,115	1	,0025
Improvement	9,115	1	,0025

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	71	8	89,87%
	1	20	11	35,48%
			Overall	74,55%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	1,5854	,5291	8,9769	1	,0027	,2309	4,8812
Constant	-1,2669	,2531	25,0473	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 2.60 (0.99 <OR< 6.85)
+|    14  |    19  |    33
 +--------+--------+                                Chi-Squares   P-values
-|    17  |    60  |    77                          -----------   --------
 +--------+--------+              Yates corrected:     3.77    0.0520871
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
RXFIPA			
	0	77	,000
	1	33	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. RXFIPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	126,283
Goodness of Fit	110,000

	Chi-Square	df	Significance
Model Chi-Square	4,543	1	,0331
Improvement	4,543	1	,0331

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	79	0	100,00%
	1	31	0	,00%
		Overall		71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
RXFIPA(1)	,9557	,4467	4,5775	1	,0324	,1404	2,6006
Constant	-1,2611	,2748	21,0682	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 2.04 (0.79 <OR< 5.29)
+|    16  |    29  |    45
 +--------+--------+                                Chi-Squares   P-values
-|    13  |    48  |    61                          -----------   --------
 +--------+--------+              Yates corrected:     1.98    0.1598503
E     29       77      106
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
CVFA			
	0	61	,000
	1	45	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 124,39989

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. CVFA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	121,776
Goodness of Fit	106,000

	Chi-Square	df	Significance
Model Chi-Square	2,624	1	,1053
Improvement	2,624	1	,1053

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	77	0	100,00%
	1	29	0	,00%
		Overall		72,64%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
CVFA(1)	,7115	,4413	2,5998	1	,1069	,0694	2,0371
Constant	-1,3062	,3127	17,4543	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 1.25 (0.40 <OR< 3.85)
+|     7  |    16  |    23
 +--------+--------+                                Chi-Squares   P-values
-|    20  |    57  |    77                          -----------   --------
 +--------+--------+              Yates corrected:     0.02    0.8766485
E     27       73      100
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TCVFB			
	0	77	,000
	1	23	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 116,65177

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TCVFB

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	116,476
Goodness of Fit	100,000

	Chi-Square	df	Significance
Model Chi-Square	,176	1	,6751
Improvement	,176	1	,6751

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	73	0	100,00%
	1	27	0	,00%
		Overall		73,00%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TCVFB(1)	,2206	,5224	,1784	1	,6728	,0000	1,2469
Constant	-1,0473	,2599	16,2395	1	,0001		

```
     + Disease -
 +--------+--------+              Odds ratio = 1.53 (0.56 <OR< 4.16)
+|    11  |    22  |    33
 +--------+--------+                                Chi-Squares   P-values
-|    17  |    52  |    69                          -----------   --------
 +--------+--------+              Yates corrected:     0.47    0.4942885
E     28       74      102
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TCRETB			
	0	69	,000
	1	33	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 119,88937

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TCRETB

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	119,058
Goodness of Fit	102,000

	Chi-Square	df	Significance
Model Chi-Square	,831	1	,3619
Improvement	,831	1	,3619

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	74	0	100,00%
1	1	28	0	,00%
			Overall	72,55%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TCRETB(1)	,4249	,4631	,8419	1	,3588	,0000	1,5294
Constant	-1,1180	,2794	16,0144	1	,0001		

```
     + Disease -
 +--------+--------+              Odds ratio = 2.08 (0.51 <OR< 8.33*)
+|     5  |     7  |    12
 +--------+--------+
-|    23  |    67  |    90
 +--------+--------+              Fisher exact: 2-tailed P-value: 0.3025687
E     28       74      102
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TCFAVB			
	0	90	,000
	1	12	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 119,88937

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TCFAVB

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	118,605
Goodness of Fit	102,000

	Chi-Square	df	Significance
Model Chi-Square	1,285	1	,2571
Improvement	1,285	1	,2571

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	74	0	100,00%
1	1	28	0	,00%
			Overall	72,55%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TCFAVB(1)	,7327	,6335	1,3380	1	,2474	,0000	2,0807
Constant	-1,0692	,2417	19,5738	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 1.24 (0.47 <OR< 3.28)
+|    14  |    34  |    48
 +--------+--------+                                Chi-Squares   P-values
-|    13  |    39  |    52                          -----------   --------
 +--------+--------+              Yates corrected:     0.06    0.8076488
E     27       73      100
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TCTOTA			
	0	52	,000
	1	48	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 116,65177

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TCTOTA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	116,432
Goodness of Fit	100,000

	Chi-Square	df	Significance
Model Chi-Square	,220	1	,6392
Improvement	,220	1	,6392

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	73	0	100,00%
	1	27	0	,00%
		Overall		73,00%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TCTOTA(1)	,2113	,4510	,2195	1	,6394	,0000	1,2353
Constant	-1,0986	,3203	11,7677	1	,0006		

```
     + Disease -
 +--------+--------+              Odds ratio = 2.79 (1.06 <OR< 7.40)
+|    14  |    18  |    32
 +--------+--------+                              Chi-Squares   P-values
-|    17  |    61  |    78                        -----------   --------
 +--------+--------+              Yates corrected:     4.37    0.0364968
E     31       79      110
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
ECOPAPA			
	0	78	,000
	1	32	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. ECOPAPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	125,651
Goodness of Fit	110,000

	Chi-Square	df	Significance
Model Chi-Square	5,175	1	,0229
Improvement	5,175	1	,0229

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	79	0	100,00%
1	1	31	0	,00%
			Overall	71,82%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
ECOPAPA(1)	1,0263	,4497	5,2095	1	,0225	,1566	2,7908
Constant	-1,2777	,2743	21,7026	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 2.05 (0.64 <OR< 6.99*)
+|    25  |    56  |    81
 +--------+--------+                                 Chi-Squares   P-values
-|     5  |    23  |    28                           -----------   --------
 +--------+--------+              Yates corrected:     1.17    0.2788038
E     30       79      109
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
ECTA			
	0	28	,000
	1	81	1,000

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 128,26923

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. ECTA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	126,394
Goodness of Fit	108,998

	Chi-Square	df	Significance
Model Chi-Square	1,875	1	,1709
Improvement	1,875	1	,1709

Classification Table for TCAMA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	79	0	100,00%
1	1	30	0	,00%
			Overall	72,48%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
ECTA(1)	,7195	,5489	1,7180	1	,1899	,0000	2,0534
Constant	-1,5260	,4934	9,5644	1	,0020		

```
     + Disease -
 +--------+--------+               Odds ratio = 0.93 (0.23 <OR< 3.98*)
+|    27  |    65  |    92
 +--------+--------+
-|     4  |     9  |    13
 +--------+--------+               Fisher exact: 2-tailed P-value: 1.0000000
E     31       74      105
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
SEXOA			
	1	92	1,000
	0	13	,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. SEXOA

Estimation terminated at iteration number 3 because
parameter estimates changed by less than ,001

-2 Log Likelihood	127,412
Goodness of Fit	105,000

	Chi-Square	df	Significance
Model Chi-Square	,011	1	,9165
Improvement	,011	1	,9165

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	74	0	100,00%
1	1	31	0	,00%
			Overall	70,48%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SEXOA(1)	-,0676	,6431	,0111	1	,9163	,0000	,9346
Constant	-,8109	,6009	1,8211	1	,1772		

```
     + Disease -
 +--------+--------+              Odds ratio = 1.71 (0.64 <OR< 4.53)
+|    12  |    20  |    32
 +--------+--------+                              Chi-Squares   P-values
-|    19  |    54  |    73                        -----------   --------
 +--------+--------+              Yates corrected:     0.91    0.3401276
E     31       74      105
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
RACAA			
	0	73	,000
	1	32	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. RACAA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	126,048
Goodness of Fit	105,000

	Chi-Square	df	Significance
Model Chi-Square	1,375	1	,2410
Improvement	1,375	1	,2410

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	74	0	100,00%
1	1	31	0	,00%
		Overall		70,48%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
RACAA(1)	,5337	,4522	1,3931	1	,2379	,0000	1,7053
Constant	-1,0445	,2667	15,3348	1	,0001		

```
     + Disease -
 +--------+--------+
+|    28  |    50  |    78
 +--------+--------+
-|     3  |    24  |    27
 +--------+--------+
E     31       74      105
```

Odds ratio = 4.48 (1.14 <OR< 20.57*)

	Chi-Squares	P-values
Yates corrected:	4.79	0.0286120

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
IDADEA			
	1	78	1,000
	0	27	,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	120,678
Goodness of Fit	105,000

	Chi-Square	df	Significance
Model Chi-Square	6,745	1	,0094
Improvement	6,745	1	,0094

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	74	0	100,00%
1	1	31	0	,00%
			Overall	70,48%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	1,4996	,6563	5,2212	1	,0223	,1590	4,4800
Constant	-2,0794	,6124	11,5309	1	,0007		

```
     + Disease -
 +--------+--------+               Odds ratio = 0.86 (0.30 <OR< 2.53)
+|    23  |    57  |    80
 +--------+--------+                                Chi-Squares   P-values
-|     8  |    17  |    25                          -----------   --------
 +--------+--------+               Yates corrected:     0.00    0.9523158
E     31       74      105
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TDA			
	1	80	1,000
	0	25	,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TDA

Estimation terminated at iteration number 3 because
parameter estimates changed by less than ,001

-2 Log Likelihood	127,327
Goodness of Fit	105,000

	Chi-Square	df	Significance
Model Chi-Square	,096	1	,7571
Improvement	,096	1	,7571

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	74	0	100,00%
1	1	31	0	,00%
			Overall	70,48%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TDA(1)	-,1538	,4948	,0966	1	,7560	,0000	,8575
Constant	-,7538	,4287	3,0909	1	,0787		

```
     + Disease -
 +--------+--------+              Odds ratio = 1.38 (0.50 <OR< 3.78)
+|    10  |    19  |    29
 +--------+--------+                              Chi-Squares   P-values
-|    21  |    55  |    76                        -----------   --------
 +--------+--------+              Yates corrected:     0.20    0.6535196
E     31       74      105
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
FCA			
	0	76	,000
	1	29	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. FCA

Estimation terminated at iteration number 3 because
parameter estimates changed by less than ,001

-2 Log Likelihood	126,958
Goodness of Fit	105,000

	Chi-Square	df	Significance
Model Chi-Square	,465	1	,4952
Improvement	,465	1	,4952

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	74	0	100,00%
1	1	31	0	,00%
		Overall		70,48%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
FCA(1)	,3210	,4674	,4716	1	,4923	,0000	1,3784
Constant	-,9628	,2565	14,0880	1	,0002		

```
     + Disease -
 +--------+--------+
+|     2  |     9  |    11
 +--------+--------+
-|     2  |    13  |    15
 +--------+--------+
E      4       22       26
```

Odds ratio = 1.44 (0.11 <OR< 18.63*)

Fisher exact: 2-tailed P-value: 1.0000000

```
     + Disease -
 +--------+--------+
+|    27  |    52  |    79
 +--------+--------+
-|     2  |    13  |    15
 +--------+--------+
E     29       65       94
```

Odds ratio = 3.38 (0.65 <OR< 23.41*)

Fisher exact: 2-tailed P-value: 0.1360957

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)	(2)
FANA				
	0	15	,000	,000
	1	11	1,000	,000
	2	79	,000	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. FANA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	123,680
Goodness of Fit	104,990

	Chi-Square	df	Significance
Model Chi-Square	3,743	2	,1539
Improvement	3,743	2	,1539

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
		0	1	
0	0	74	0	100,00%
1	1	31	0	,00%
			Overall	70,48%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
FANA			3,1627	2	,2057	,0000	
FANA(1)	,3669	1,0898	,1134	1	,7364	,0000	1,4433
FANA(2)	1,2155	,7955	2,3347	1	,1265	,0513	3,3720
Constant	-1,8709	,7593	6,0712	1	,0137		

```
     + Disease -
 +--------+--------+              Odds ratio = 8.77 (2.94 <OR< 26.97)
+|    17  |     9  |    26
 +--------+--------+                                Chi-Squares   P-values
-|    14  |    65  |    79                          -----------   --------
 +--------+--------+              Yates corrected:    19.13    0.0000122
E     31       74      105
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
SCL70A			
	0	79	,000
	1	26	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. SCL70A

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	107,351
Goodness of Fit	104,995

	Chi-Square	df	Significance
Model Chi-Square	20,072	1	,0000
Improvement	20,072	1	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	65	9	87,84%
	1	14	17	54,84%
			Overall	78,10%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SCL70A(1)	2,1712	,5067	18,3617	1	,0000	,3583	8,7690
Constant	-1,5352	,2946	27,1514	1	,0000		

```
     + Disease -
 +--------+--------+               Odds ratio = 29.65 (5.57 <OR< 209.91*)
+|    14  |     2  |    16
 +--------+--------+
-|    17  |    72  |    89
 +--------+--------+               Fisher exact: 2-tailed P-value: 0.0000002
E     31       74      105
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
DISPA			
	0	89	,000
	1	16	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. DISPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	98,865
Goodness of Fit	104,981

	Chi-Square	df	Significance
Model Chi-Square	28,558	1	,0000
Improvement	28,558	1	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	72	2	97,30%
1	1	17	14	45,16%
			Overall	81,90%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DISPA(1)	3,3880	,8022	17,8357	1	,0000	,3525	29,6057
Constant	-1,4434	,2696	28,6538	1	,0000		

```
     + Disease -
 +--------+--------+
+|    20  |    11  |    31
 +--------+--------+
-|    11  |    63  |    74
 +--------+--------+
E     31       74      105
```

Odds ratio = 10.41 (3.56 <OR< 31.43)

	Chi-Squares	P-values
Yates corrected:	23.55	0.0000012

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
RXFIPA			
	0	74	,000
	1	31	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. RXFIPA

Estimation terminated at iteration number 4 because
parameter estimates changed by less than ,001

-2 Log Likelihood	102,537
Goodness of Fit	105,000

	Chi-Square	df	Significance
Model Chi-Square	24,886	1	,0000
Improvement	24,886	1	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	63	11	85,14%
1	1	11	20	64,52%
		Overall		79,05%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
RXFIPA(1)	2,3431	,4977	22,1647	1	,0000	,3978	10,4132
Constant	-1,7452	,3268	28,5241	1	,0000		

```
     + Disease -
 +--------+--------+
+|    23  |    20  |    43
 +--------+--------+
-|     7  |    52  |    59
 +--------+--------+
E     30       72      102
```

Odds ratio = 8.54 (2.89 <OR< 26.18)

	Chi-Squares	P-values
Yates corrected:	18.80	0.0000145

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
CVFA			
	0	59	,000
	1	43	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. CVFA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	102,379
Goodness of Fit	102,000

	Chi-Square	df	Significance
Model Chi-Square	21,204	1	,0000
Improvement	21,204	1	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	52	20	72,22%
1	1	7	23	76,67%
			Overall	73,53%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
CVFA(1)	2,1451	,5055	18,0049	1	,0000	,3599	8,5428
Constant	-2,0053	,4026	24,8098	1	,0000		

```
     + Disease -
 +--------+--------+
+|    11  |    11  |    22
 +--------+--------+
-|    16  |    58  |    74
 +--------+--------+
E     27       69       96
```

Odds ratio = 3.63 (1.19 <OR< 11.15)

	Chi-Squares	P-values
Yates corrected:	5.43	0.0198497

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TCVFB			
	0	74	,000
	1	22	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 114,07296

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TCVFB

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	107,766
Goodness of Fit	96,000

	Chi-Square	df	Significance
Model Chi-Square	6,307	1	,0120
Improvement	6,307	1	,0120

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	58	11	84,06%
1	1	16	11	40,74%
			Overall	71,88%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TCVFB(1)	1,2878	,5114	6,3410	1	,0118	,1951	3,6250
Constant	-1,2878	,2824	20,7991	1	,0000		

```
     + Disease -
 +--------+--------+
+|    17  |    14  |    31
 +--------+--------+
-|    11  |    56  |    67
 +--------+--------+
E     28       70       98
```

Odds ratio = 6.18 (2.15 <OR< 18.17)

	Chi-Squares	P-values
Yates corrected:	13.51	0.0002379

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TCRETB			
	0	67	,000
	1	31	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 117,26084

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TCRETB

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	102,520
Goodness of Fit	97,992

	Chi-Square	df	Significance
Model Chi-Square	14,741	1	,0001
Improvement	14,741	1	,0001

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	56	14	80,00%
1	1	11	17	60,71%
			Overall	74,49%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TCRETB(1)	1,8214	,4889	13,8809	1	,0002	,3183	6,1807
Constant	-1,6273	,3298	24,3490	1	,0000		

```
     + Disease -
 +--------+--------+               Odds ratio = 1.96 (0.48 <OR< 7.84*)
+|     5  |     7  |    12
 +--------+--------+
-|    23  |    63  |    86
 +--------+--------+               Fisher exact: 2-tailed P-value: 0.3151818
E     28       70       98


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1

                            Parameter
             Value   Freq   Coding
                              (1)
TCFAVB
                 0     86    ,000
                 1     12   1,000


Dependent Variable..   DELTAA

Beginning Block Number  0.  Initial Log Likelihood Function

-2 Log Likelihood   117,26084

* Constant is included in the model.

Beginning Block Number  1.  Method: Enter

Variable(s) Entered on Step Number
1..       TCFAVB

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood      116,181
 Goodness of Fit         98,000

                    Chi-Square    df Significance

 Model Chi-Square         1,080     1        ,2987
 Improvement              1,080     1        ,2987

Classification Table for DELTAA
                 Predicted
                 0       1      Percent Correct
                  0  |    1
Observed     +-------+-------+
   0     0   |   70  |    0  |  100,00%
             +-------+-------+
   1     1   |   28  |    0  |     ,00%
             +-------+-------+
                       Overall  71,43%

---------------------- Variables in the Equation ------------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

TCFAVB(1)       ,6712     ,6342   1,1200     1    ,2899   ,0000   1,9565
Constant      -1,0076     ,2436  17,1073     1    ,0000
```

```
     + Disease -
 +--------+--------+
+|    20  |    25  |    45
 +--------+--------+
-|     7  |    44  |    51
 +--------+--------+
E     27       69       96
```

Odds ratio = 5.03 (1.70 <OR< 15.36)

	Chi-Squares	P-values
Yates corrected:	9.69	0.0018509

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
TCTOTA			
	0	51	,000
	1	45	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 114,07296

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. TCTOTA

Estimation terminated at iteration number 4 because
parameter estimates changed by less than ,001

-2 Log Likelihood	102,621
Goodness of Fit	96,000

	Chi-Square	df	Significance
Model Chi-Square	11,452	1	,0007
Improvement	11,452	1	,0007

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed		0	1	
0	0	69	0	100,00%
1	1	27	0	,00%
		Overall		71,88%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
TCTOTA(1)	1,6151	,5056	10,2067	1	,0014	,2682	5,0286
Constant	-1,8383	,4069	20,4081	1	,0000		

```
     + Disease -
 +--------+--------+              Odds ratio = 3.24 (1.19 <OR< 8.87)
+|    14  |    15  |    29
 +--------+--------+                              Chi-Squares   P-values
-|    17  |    59  |    76                        -----------   --------
 +--------+--------+              Yates corrected:     5.58    0.0181337
E     31       74      105
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
ECOPAPA			
	0	76	,000
	1	29	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 127,42283

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. ECOPAPA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	120,961
Goodness of Fit	105,000

	Chi-Square	df	Significance
Model Chi-Square	6,462	1	,0110
Improvement	6,462	1	,0110

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	74	0	100,00%
	1	31	0	,00%
		Overall		70,48%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
ECOPAPA(1)	1,1753	,4625	6,4591	1	,0110	,1871	3,2392
Constant	-1,2443	,2753	20,4339	1	,0000		

```
     + Disease -
 +--------+--------+
+|    26  |    51  |    77
 +--------+--------+
-|     5  |    22  |    27
 +--------+--------+
E     31       73      104
```

Odds ratio = 2.24 (0.69 <OR< 7.67*)

	Chi-Squares	P-values
Yates corrected:	1.55	0.2127907

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
ECTA			
	0	27	,000
	1	77	1,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 126,71902

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. ECTA

Estimation terminated at iteration number 3 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	124,354
Goodness of Fit	103,999

	Chi-Square	df	Significance
Model Chi-Square	2,365	1	,1241
Improvement	2,365	1	,1241

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
		0	1	
0	0	73	0	100,00%
1	1	31	0	,00%
			Overall	70,19%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
ECTA(1)	,8078	,5509	2,1500	1	,1426	,0344	2,2430
Constant	-1,4815	,4954	8,9428	1	,0028		

Modelo 4: 3 variáveis independentes, com interação e com todos os registros (Enter)

```
      Total number of cases:      110 (Unweighted)
      Number of selected cases:   110
      Number of unselected cases: 0

      Number of selected cases:                 110
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 110


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
             Value   Freq     Coding
                                (1)
RACAA
                 0     76     ,000
                 1     34    1,000
DISPA
                 0     91     ,000
                 1     19    1,000
IDADEA
                 1     82    1,000
                 0     28     ,000
```

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA
DISPA
RACAA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	107,332
Goodness of Fit	120,479

	Chi-Square	df	Significance
Model Chi-Square	23,494	3	,0000
Improvement	23,494	3	,0000

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	75	4	94,94%
1	1	20	11	35,48%
			Overall	78,18%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	**2,0505**	**,8138**	**6,3489**	**1**	**,0117**	**,1823**	**7,7719**
DISPA(1)	**1,8336**	**,5936**	**9,5402**	**1**	**,0020**	**,2401**	**6,2562**
RACAA(1)	**1,0502**	**,4967**	**4,4712**	**1**	**,0345**	**,1374**	**2,8584**
Constant	**-3,3969**	**,8374**	**16,4549**	**1**	**,0001**		

```
      Total number of cases:      110 (Unweighted)
      Number of selected cases:   110
      Number of unselected cases: 0

      Number of selected cases:                 110
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 110


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
RACAA
                  0     76     ,000
                  1     34    1,000
DISPA
                  0     91     ,000
                  1     19    1,000
IDADEA
                  1     82    1,000
                  0     28     ,000


      Interactions:

INT_1    DISPA(1) by RACAA(1)
```

Dependent Variable.. TCAMA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 130,82571

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA
     DISPA
     RACAA
     DISPA * RACAA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	107,116		
Goodness of Fit	120,132		
	Chi-Square	df	Significance
Model Chi-Square	23,710	4	,0001
Improvement	23,710	4	,0001

Classification Table for TCAMA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	75	4	94,94%
	1	20	11	35,48%
			Overall	78,18%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	2,0932	,8360	6,2694	1	,0123	,1807	8,1110
DISPA(1)	1,6841	,6758	6,2103	1	,0127	,1794	5,3874
RACAA(1)	,9531	,5400	3,1155	1	,0776	,0923	2,5938
INT_1	,6638	1,4681	,2044	1	,6512	,0000	1,9421
Constant	-3,3942	,8536	15,8100	1	,0001		

Modelo 4: 4 variáveis independ., com interação e excluindo-se valores em branco (Enter)

```
      Total number of cases:      102 (Unweighted)
      Number of selected cases:   102
      Number of unselected cases: 0

      Number of selected cases:                 102
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 102


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                           Parameter
             Value   Freq  Coding
                             (1)
CVFA
                 0     59   ,000
                 1     43  1,000
DISPA
                 0     87   ,000
                 1     15  1,000
SCL70A
                 0     76   ,000
                 1     26  1,000
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. SCL70A
DISPA
CVFA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	77,762
Goodness of Fit	94,123

	Chi-Square	df	Significance
Model Chi-Square	45,821	3	,0000
Improvement	45,821	3	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	66	6	91,67%
1	1	11	19	63,33%
			Overall	83,33%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SCL70A(1)	1,9136	,6122	9,7697	1	,0018	,2507	6,7774
DISPA(1)	2,8196	,9027	9,7558	1	,0018	,2505	16,7695
CVFA(1)	1,3894	,5839	5,6617	1	,0173	,1721	4,0123
Constant	-2,6326	,4911	28,7380	1	,0000		

```
      Total number of cases:      102 (Unweighted)
      Number of selected cases:   102
      Number of unselected cases: 0

      Number of selected cases:                 102
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 102


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
CVFA
                  0     59     ,000
                  1     43    1,000
DISPA
                  0     87     ,000
                  1     15    1,000
SCL70A
                  0     76     ,000
                  1     26    1,000


      Interactions:

INT_1    CVFA(1) by DISPA(1)
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. SCL70A
     DISPA
     CVFA
     CVFA * DISPA

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	77,731		
Goodness of Fit	93,714		
	Chi-Square	df	Significance
Model Chi-Square	45,851	4	,0000
Improvement	45,851	4	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed				
0	0	66	6	91,67%
1	1	11	19	63,33%
			Overall	83,33%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SCL70A(1)	1,9061	,6140	9,6380	1	,0019	,2486	6,7270
DISPA(1)	2,6107	1,5012	3,0245	1	,0820	,0910	13,6091
CVFA(1)	1,3541	,6165	4,8248	1	,0281	,1512	3,8733
INT_1	,3267	1,8824	,0301	1	,8622	,0000	1,3864
Constant	-2,6107	,5036	26,8762	1	,0000		

```
      Total number of cases:      102 (Unweighted)
      Number of selected cases:   102
      Number of unselected cases: 0

      Number of selected cases:                 102
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 102


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
CVFA
                  0     59     ,000
                  1     43    1,000
DISPA
                  0     87     ,000
                  1     15    1,000
SCL70A
                  0     76     ,000
                  1     26    1,000


      Interactions:

INT_1    CVFA(1) by SCL70A(1)
```

```
Dependent Variable..   DELTAA

Beginning Block Number  0.  Initial Log Likelihood Function

-2 Log Likelihood   123,58269

* Constant is included in the model.


Beginning Block Number  1.  Method: Enter

Variable(s) Entered on Step Number
1..       SCL70A
          DISPA
          CVFA
          CVFA * SCL70A

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than ,01 percent.

 -2 Log Likelihood       77,549
 Goodness of Fit         97,082

                    Chi-Square    df Significance

 Model Chi-Square        46,034     4        ,0000
 Improvement             46,034     4        ,0000

Classification Table for DELTAA
                 Predicted
                 0       1      Percent Correct
                  0  |    1
Observed     +-------+-------+
   0     0   |   66  |    6  |   91,67%
            +-------+-------+
   1     1   |   11  |   19  |   63,33%
            +-------+-------+
                      Overall  83,33%

---------------------- Variables in the Equation ------------------------

Variable            B      S.E.     Wald    df      Sig       R   Exp(B)

SCL70A(1)      2,2361     ,9263   5,8283     1    ,0158   ,1760   9,3571
DISPA(1)       2,8444     ,9076   9,8214     1    ,0017   ,2516  17,1920
CVFA(1)        1,5891     ,7336   4,6919     1    ,0303   ,1476   4,8992
INT_1          -,5599    1,2101    ,2140     1    ,6436   ,0000    ,5713
Constant      -2,7470     ,5697  23,2460     1    ,0000
```

```
Total number of cases:      102 (Unweighted)
Number of selected cases:   102
Number of unselected cases: 0

Number of selected cases:                 102
Number rejected because of missing data:  0
Number of cases included in the analysis: 102
```

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

	Value	Freq	Parameter Coding (1)
CVFA			
	0	59	,000
	1	43	1,000
SCL70A			
	0	76	,000
	1	26	1,000
DISPA			
	0	87	,000
	1	15	1,000
IDADEA			
	1	75	1,000
	0	27	,000

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. IDADEA
SCL70A
DISPA
CVFA

Estimation terminated at iteration number 5 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	71,605		
Goodness of Fit	86,231		
	Chi-Square	df	Significance
Model Chi-Square	51,978	4	,0000
Improvement	51,978	4	,0000

Classification Table for DELTAA

		Predicted 0	Predicted 1	Percent Correct
Observed	0	67	5	93,06%
	1	11	19	63,33%
			Overall	84,31%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
IDADEA(1)	**2,0659**	**,9649**	**4,5846**	**1**	**,0323**	**,1446**	**7,8928**
SCL70A(1)	**1,6690**	**,6411**	**6,7768**	**1**	**,0092**	**,1966**	**5,3069**
DISPA(1)	**3,0554**	**,9703**	**9,9154**	**1**	**,0016**	**,2531**	**21,2305**
CVFA(1)	**1,6651**	**,6227**	**7,1497**	**1**	**,0075**	**,2041**	**5,2864**
Constant	**-4,4091**	**1,0640**	**17,1733**	**1**	**,0000**		

```
      Total number of cases:      102 (Unweighted)
      Number of selected cases:   102
      Number of unselected cases: 0

      Number of selected cases:                 102
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 102


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
IDADEA
                  1     75  1,000
                  0     27   ,000
DISPA
                  0     87   ,000
                  1     15  1,000
CVFA
                  0     59   ,000
                  1     43  1,000
SCL70A
                  0     76   ,000
                  1     26  1,000


      Interactions:

INT_1    IDADEA(1) by SCL70A(1)
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. SCL70A
DISPA
CVFA
IDADEA
IDADEA * SCL70A

Estimation terminated at iteration number 5 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	71,445		
Goodness of Fit	85,179		
	Chi-Square	df	Significance
Model Chi-Square	52,137	5	,0000
Improvement	52,137	5	,0000

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	67	5	93,06%
1	1	11	19	63,33%
			Overall	84,31%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SCL70A(1)	,9274	1,9778	,2198	1	,6392	,0000	2,5278
DISPA(1)	3,0644	,9628	10,1298	1	,0015	,2565	21,4206
CVFA(1)	1,6618	,6254	7,0612	1	,0079	,2024	5,2688
IDADEA(1)	1,8671	1,0606	3,0990	1	,0783	,0943	6,4693
INT_1	,8305	2,0942	,1573	1	,6917	,0000	2,2945
Constant	-4,2414	1,1153	14,4627	1	,0001		

```
      Total number of cases:      102 (Unweighted)
      Number of selected cases:   102
      Number of unselected cases: 0

      Number of selected cases:                 102
      Number rejected because of missing data:  0
      Number of cases included in the analysis: 102


Dependent Variable Encoding:

Original       Internal
Value          Value
0              0
1              1


                              Parameter
              Value   Freq    Coding
                                (1)
IDADEA
                  1     75  1,000
                  0     27   ,000
DISPA
                  0     87   ,000
                  1     15  1,000
CVFA
                  0     59   ,000
                  1     43  1,000
SCL70A
                  0     76   ,000
                  1     26  1,000


      Interactions:

INT_1    CVFA(1) by IDADEA(1)
```

Dependent Variable.. DELTAA

Beginning Block Number 0. Initial Log Likelihood Function

-2 Log Likelihood 123,58269

* Constant is included in the model.

Beginning Block Number 1. Method: Enter

Variable(s) Entered on Step Number
1.. SCL70A
DISPA
CVFA
IDADEA
CVFA * IDADEA

Estimation terminated at iteration number 8 because
Log Likelihood decreased by less than ,01 percent.

-2 Log Likelihood	71,070
Goodness of Fit	81,386

	Chi-Square	df	Significance
Model Chi-Square	52,513	5	,0000
Improvement	52,513	5	,0000

Classification Table for DELTAA

Observed		Predicted 0	Predicted 1	Percent Correct
0	0	67	5	93,06%
1	1	11	19	63,33%
			Overall	84,31%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SCL70A(1)	1,6706	,6394	6,8264	1	,0090	,1976	5,3151
DISPA(1)	2,9554	,9611	9,4552	1	,0021	,2456	19,2086
CVFA(1)	6,8998	25,2982	,0744	1	,7851	,0000	992,0373
IDADEA(1)	7,1328	25,2842	,0796	1	,7779	,0000	1252,434
INT_1	-5,3304	25,3064	,0444	1	,8332	,0000	,0048
Constant	-9,4206	25,2807	,1389	1	,7094		