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ORIGINAL ARTICLE

Elevated HDL is the main negative risk factor for coronary artery disease in the elderly patient with calcific aortic valve disease☆

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Abstract In spite of high prevalences of hypertension and hypercholesterolemia, the majority of elderly patients admitted for aortic valve surgery due to calcific aortic valve disease (CAVD) do not have significant coronary artery disease (CAD).
Objective: To evaluate the lipid profile (LP) of patients undergoing surgery for CAVD and to correlate this with coronary angiographic data and prior cardiovascular risk factor profile.
Methods: This was a prospective observational cohort study of 264 consecutive patients aged >59 years (mean 72), 126 men (48%) and 138 women (52%). According to the angiographic presence (irregularities, moderate or significant lesions) or absence (normal angiogram) of significant CAD respectively, patients were divided into two groups: A (n=127, 48%) and B (n=137, 52%). A mean of 3.5 classical risk factors were identified in men and 2.6 in women. LP (obtained on admission, in the fasting state) included total cholesterol (TC), HDL, triglycerides (TG), LDL, and lipoprotein(a).
Results: With the exception of male gender, diabetes and HDL, the other factors studied – smoking, hypertension, TC, TG, LDL (in both statin-treated and non-statin-treated patients) and lipoprotein(a) – did not show significant differences between groups A and B; LDL was 116±40 mg/dl in group A vs. 123±38 mg/dl in group B, in non-statin-treated patients; significant CAD was identified in 64% of men vs. 26% of women (p<0.001); 43% of group A had diabetes vs. 27% of group B (p<0.01); HDL was 49±14 mg/dl in group A vs. 59±16 mg/dl in group B (p<0.001); HDL in group A was 49±14 mg/dl in men vs. 49±13 mg/dl in women (NS) and 45±13 mg/dl in diabetic patients vs. 52±14 mg/dl in non-diabetics (p<0.02); HDL in group B diabetic patients was 54±17 mg/dl in men vs. 56±18 mg/dl in women (NS), and HDL in group B non-diabetic patients was 55±13 mg/dl in men vs. 63±17 mg/dl in women (p<0.02). Multivariate analysis

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showed that only low HDL and diabetes (in women) were independent risk factors for significant CAD. The effect of male gender as a risk factor appears to be exerted mainly through lower HDL levels.
Conclusions: Elevated HDL is the main negative risk factor for significant CAD in elderly high-risk but mildly dyslipidemic CAVD patients. HDL does not appear to have any protective effect in the pathophysiology of CAVD. In terms of long-term intervention, primary prevention of significant CAD should in the future be hybrid, focusing mainly on improving HDL function, but also on lowering LDL.

PALAVRAS-CHAVE
Colesterol-HDL;
Doença coronária;
Doença fibrocalcificante valvular aórtica;
Estenose aórtica;
Fatores de risco;
Doentes idosos

Um valor elevado de HDL é o principal factor protector contra a doença coronária no idoso com doença fibrocalcificante valvular aórtica

Resumo Apesar de apresentarem elevadas prevalências de hipertensão (HT) e hipercolesterolemia – colesterol total (CT) > 190 mg/dl – a maioria dos doentes (dts) idosos internados para cirurgia valvular por doença fibrocalcificante valvular aórtica (DFCVA) não tem doença coronária significativa (DCS).
Objetivo: Avaliação do perfil lipidémico (PL) de dts operados por DFCVA e sua correlação com os dados coronariográficos e o perfil de fatores de risco (FR) prévio.
Material e métodos: Estudo observacional prospetivo, de coorte, de 264 dts com DFCVA, 126 homens (dts M) e 138 mulheres (dts F), com idade > 59 anos (idade média de 72), consecutivamente internados. PL: determinação (na admissão, em jejum) de CT, HDL, triglicéridos (TG), LDL e lipoproteína (a) (Lp(a)). Conforme a presença angiográfica (irregularidades, lesões moderadas ou graves) ou a ausência (coronárias normais) de DCS, os dts foram respetivamente divididos em 2 grupos (Gr): GrA (127 dts – 48% do total) e GrB (137 dts – 52%). FR clássicos (média): 3,5 nos dts M, 2,6 nos dts F.
Resultados: 1) Com exceção do género masculino, diabetes e HDL, os restantes fatores (tabagismo, HT, CT, TG, LDL – tanto nos dts medicados com estatina como nos dts não medicados – e Lp(a)) não permitem discriminar os dts-GrA dos dts-GrB; LDL(mg/dl)- GrA 116 ± 40 *versus* GrB 123 ± 38, nos dts não medicados com estatina. 2) DCS: 64 dts M *versus* 26% dts F ($p < 0,001$); diabetes – 43 no GrA *versus* 27% no GrB ($p < 0,01$); HDL (mg/dl) – 49 ± 14 no GrA *versus* 59 ± 16 no GrB ($p < 0,001$). 3) HDL (mg/dl) no GrA – 49 ± 14 nos dts M *versus* 49 ± 13 nos dts F (NS); 45 ± 13 em dts diabéticos *versus* 52 ± 14 em dts não diabéticos ($p < 0,02$). 4) HDL (mg/dl) no GrB-diabéticos – 54 ± 17 nos dts M *versus* 56 ± 18 nos dts F (NS); HDL (mg/dl) no GrB-não diabéticos – 55 ± 13 nos dts M *versus* 63 ± 17 nos dts F ($p < 0,02$). 5) Análise multivariada: revelou que apenas o HDL baixo e a diabetes (nos dts F) são FR independentes para o desenvolvimento de DCS. O papel do género masculino como FR parece exercer-se fundamentalmente por via da redução dos valores de HDL.
Conclusões: Um valor alto de HDL é o principal fator protetor contra a DCS no idoso com DFCVA, com risco elevado, mas com dislipidemia ligeira/moderada. O HDL não parece desempenhar qualquer ação protetora na etiopatogénese da DFCVA. Em intervenção a longo prazo, no futuro, a prevenção primária da DCS deverá tornar-se híbrida, focando-se fundamentalmente na melhoria da função do HDL, mas em associação com a redução do LDL.

Introduction

Calcific valve disease, particularly calcific aortic valve disease (CAVD), has a similar pathophysiology to atherosclerotic vascular disease.[1] The initiating event of CAVD is an atherosclerotic lesion[1] and its evolution has a strong inflammatory component.[1,2] The main risk factors for CAVD are the same as for atherosclerotic vascular disease, particularly coronary artery disease (CAD): hypertension, dyslipidemia, diabetes, male gender, smoking and advanced age.[1,3–5] However, in spite of high prevalences of hypertension and dyslipidemia, the majority of elderly patients admitted for aortic valve surgery due to CAVD do not have significant CAD.[3,6] The question arises as to why individuals with multiple cardiovascular risk factors reach the age of 70 or more with no evidence of significant CAD. The current epidemic of CAVD in the elderly means that this cohort can serve as a kind of natural laboratory for the study of CAD in this