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Effect of multidisciplinary educational programs delivered to scholar children on cardiovascular risk profile of their relatives: Systematic review and meta-analysis

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Background: Multidisciplinary educational programs involving scholar children and their relatives could be an easy and scalable preventive measure to face the increasing burden of cardiovascular diseases. Nevertheless such programs are not common in our context. Objective: To identify, summarize and analyze studies reporting multidisciplinary educational programs involving scholar children and the reported effect on cardiovascular risk factors in their relatives. Methods: A predefined protocol in accordance with the PRISMA was used. Electronic searches in Medline, PubMed, Embase, Cochrane Library, IBECS, SciELO and LILACS were conducted through March/2014 involving multidisciplinary educational programs with parallel group design. Reported outcome variables were high-density cholesterol (HDL), low density cholesterol (LDL), triglycerides, systolic blood pressure (SBP) and diastolic blood pressure (DBP) measured in children's relatives before and after interventions. Random effect was used to summarize pooled effects and heterogeneity was analyzed by I2. Quality of studies was evaluated with the Cochrane risk of bias tool. Results: Of the 4253 studies found, four reached the inclusion criteria for the systematic review and two were included in the meta-analysis contributing to three separate samples. Included studies involved 787 children (3–11 years) and 711 relatives. Interventions lasted 512 months and the pooled effects (95% CI) in relatives were: HDL 1.78 (0.10; 3:47) mg/dL (I 2 = 0%, p = 0.819), LDL −5:53 (−1:52, −9:55) mg/dL (I 2 = 70.4%, p = 0.034), triglycerides −4.45 (−18.69, 9.78) mg/dL (I 2 = 47.1%, p = 0.151), SBP −2.60 (−4:43, −0.86) mm Hg (I 2 = 0.0%, p = 0.956), DBP −2.02 (−3.23, −0.82) mm Hg (I 2 = 54.4%, p = 0.095). Methodological criteria were generally low and risk of bias was high across studies. Conclusion: Evidence on scholar programs involving LM is weak. Paucity of studies and the absence of some methodological criteria indicate that research in cardiovascular primary prevention involving scholars and their relatives is warranted.

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Carotid intima–media thickness and carotid plaque represent different adaptive responses to traditional cardiovascular risk factors

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Introduction: Carotid intima–media thickness (CIMT) is considered a reflection of multiple risk factors; however, primary contributors to intima–media thickening are age and hypertension, which do not necessarily reflect the atherosclerotic process. CIMT and carotid plaque, although correlated, reflect different stages and aspects of atherosclerosis and have distinct determinants. Objectives: To assess the effects of each traditional cardiovascular risk factor (hypertension, diabetes mellitus, dyslipidemia, and smoking), including the presence of coronary artery disease (CAD), on CIMT and to assess the degree of carotid plaque occurrence. The correlation between the presence of plaque and CIMT was also investigated. Methods: A total of 553 outpatients (216 men and 337 women; mean age 67.06 ± 12.44 years) who underwent a carotid artery ultrasound were screened for carotid plaque, and CIMT was measured. Results: The CIMT medians were higher in males ($P < .001$) and in patients with hypertension ($P < .001$). A linear increase occurred in mean CIMT of 0.0059 mm for each year of increase in age. The presence of plaque indicated a tendency to correlate with CIMT ($P = .067$). The presence of hypertension associated with diabetes ($P = .0061$; estimated difference 0.0494 mm) or dyslipidemia ($P = 0.0016$; estimated difference 0.0472 mm) or CAD ($P = .0043$; estimated difference 0.0527 mm) increased the mean CIMT measurements. The probability of plaque occurrence in carotid arteries is influenced by the age ($P < .001$) and is higher in patients with dyslipidemia ($P = .008$) and CAD ($P < .001$). Conclusions: CIMT and carotid plaque have different influences than traditional cardiovascular risk factors have. Hypertension is the strongest cardiovascular risk factor that increases CIMT, followed by age and male sex, compared to diabetes mellitus, dyslipidemia, and smoking. The presence of dyslipidemia and CAD increases the probability of the occurrence of carotid plaque. The presence of plaque indicated a tendency to correlate with CIMT. Increased CIMT and plaque could be present in the same patient caused by different risk factors and having independent effects on the artery wall and different clinical prognostic outcomes. There is no current evidence to suggest that CIMT may always progress to atherosclerotic plaque.

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Assessment of intima–media thickness in healthy children aged 1 to 15 years old

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Introduction: The assessment of cardiovascular risk in pediatric patients is challenging. Cardiovascular events or death rarely occur in children, but changes in the cardiovascular system can be identified at an early age in pediatric populations. Carotid intima–media

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