Children & Cardiovascular Disease: Is the Polynesian Youth at Risk?

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Background: Atherosclerosis is reported to progressively accelerate through childhood especially in the presence of risk factors for cardiovascular disease (CVD). We therefore sought to evaluate the atherosclerosis status in Polynesian children in whom traditional risk factors for CVD are becoming omnipresent.

Method: As part of the "Dietary and Health Transition in French Polynesia" survey, 101 children (aged 12-17yrs) from 4 different communities underwent evaluation of risk factors for CVD. The ultrasonographic measurement of the carotid intimal to medial thickness (CIMT) was interpreted as a surrogate marker of atherosclerosis. Traditional risk factors for CVD known to influence CIMT were obtained by clinical and blood measurements and subdivided as follow: 1) Obesity (normal, risk of overweight, overweight), 2) Hypertension (normal, pre-hypertension, hypertension), 3) Diabetes (normal, impaired fasting glucose). We compare CIMT between categories of risk factors using analysis of covariance (ANCOVA) adjusting for age and gender.

Results: The CIMT measurements of our young Polynesians were higher than has been reported in healthy, obese, hypertensive and diabetic children. There was no difference in CIMT between communities (p=0.24), with a total global average of 0.48 ± 0.06 mm. The obesity (normal: 0.46 ± 0.04 mm, risk of overweight: 0.47 ± 0.04 mm, overweight: 0.45 ± 0.06 mm; p=0.59), hypertension (hypertension: 0.46 ± 0.04 mm, normal: 0.46 ± 0.05 mm; p=0.53) et diabetic status (Impaired fasting glucose: 0.46 ± 0.07 mm, normal: 0.46 ± 0.04 mm; p=0.6) did not impact CIMT.

Conclusion: Polynesian children show increased signs of atherosclerosis evaluated by CIMT compared to what is being reported in the current literature. Such increase is not attributable to traditional risk factors for CVD. This intriguing lack of association may be caused by other mechanisms that requires further investigation.

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