Top Ten Things To Know
Nontraditional Risk Factors & CVD in Childhood

1. Scientific studies, including autopsies, are showing signs of the atherosclerotic process early in childhood; therefore, there is a new sense of urgency to understand markers of cardiovascular disease (CVD) in children.

2. Biomarkers are biological indicators for processes that are involved in disease development that may or may not be causal, whereas risk factors are measurable characteristics of an individual that precede a well-defined health outcome.

3. To be useful for clinicians treating CVD, biomarkers should meet at least two criteria: (1) evidence must exist from prospective studies in populations demonstrating independent prediction of vascular events with significant reclassification of risk, and (2) therapies that modify this biomarker need to be available that would otherwise not be used in the at-risk individual.

4. Criteria of evaluation of novel biomarkers for CVD in children are presented and adaptations for criteria defining a good biomarker relevant to exposures during childhood are suggested. For example, it is important to consider whether the reference limit for the biomarker is available for pediatric ages.

5. Adipocyte dysfunction, which is examined to understand the role of a novel process contributing to CVD in children, is an important underpinning for CVD; although it is clinically relevant, it is not easily measured, nor associated closely with CVD outcomes.

6. Other major processes involved in CVD that develop early in the course of obesity and adipocyte dysfunction are described and new concepts in the pathophysiology of CVD are presented.

7. Most proposed CVD biomarkers and/or risk factors are proteins and/or peptides that are integral components of all tissue.

8. It is likely that nontraditional risk factors/biomarkers can be used as a second layer of screening to follow interventions or efficacy of therapy and in predicting specific patient groups likely to benefit from targeted interventions.

9. Although associations continue to emerge between nontraditional risk factors/biomarkers and noninvasive measures of early atherosclerosis in children, the clinical relevance of these associations is yet unknown.

10. More work is needed to validate these biomarkers and to improve understanding of the role of nontraditional risk factors for CVD in children and adolescents.