documented in former preterm infants.1,2 This phenomenon is probably a marker for prolonged cardiorespiratory instability beyond preterm birth. We have speculated that persistent apnea may even be a marker of subtle neurodevelopmental problems.3

There is, however, no evidence that the recognition of persistent cardiorespiratory events is a useful diagnostic marker for SIDS. So the search continues for an appropriate means to screen infants at high risk for SIDS.

The recently reported study by Schwartz et al revives interest in one potential cause for SIDS, namely that infants with the syndrome of congenital QT prolongation are at risk for lethal ventricular arrhythmias.4 The finding of prolongation of QT in 50% of term infants who died of SIDS suggests that this abnormality could be a marker of risk for SIDS.5 A limitation of the Schwartz study was the exclusion of the majority of preterm and ill infants who are at highest risk for SIDS.6 The finding that an elevated QT interval is a strong risk factor for SIDS thus may not be generalizable to the groups of infants at greatest risk. Before we assume that a cause-and-effect relationship between prolonged QT interval and SIDS exists, we must consider the gaps in the chain of evidence. The logical conclusion from the study of Schwartz et al is that arrhythmia is the cause of death in the infants with prolonged QT.6 There is, however, no evidence for lethal arrhythmias as precipitating events in infants who have died of SIDS while on cardiorespiratory monitors, nor have ventricular arrhythmias been described in patients who have been evaluated after survival of an acute life-threatening event.7,8

A biological marker for SIDS may be important for disease screening, even if not implicated directly in the causal pathway. Schwartz et al cautiously discuss some of the issues involved in using electrocardiogram (ECG) analysis as just such a biological marker for infant screening.9 The accompanying editorial in the New England Journal of Medicine by Towbin and Friedman also suggests a role for screening for prolonged QT intervals, and suggests the need to develop an “abbreviated ECG”8 for such purposes.9 However, the editorial assertion that no surviving infant or infant who died of other causes had a prolonged QT interval, is contradicted by careful evaluation of the available data of Schwartz et al which suggest that approximately 80 such patients had elevated QT intervals.10 The latter yields a positive predictive value of 1.5%. In other words, 98.5% of positive screening studies will prove to be false-positives.

It is well-recognized that the development of screening tests for rare entities such as SIDS requires tests with high levels of specificity to reduce false-positives, and thus, reduce the number of patients/caregivers who are inappropriately subjected to additional tests and psychological stress. Additional criteria necessary before adoption of screening tests are evidence of reliability of the test, and demonstration of the feasibility and utility of the screening program. There are no data that support the utility of interventions to reduce QT duration on SIDS incidence, nor are there data that address the utility of monitoring of such “high-risk” infants so as to prevent death. Thus, the data suggest that ECG analysis for QT interval does not meet criteria for an acceptable screening test.

We agree with the comments by Schwartz et al that susceptibility to SIDS may be quite complex and that identifying high-risk infants who may be especially vulnerable to underlying cardiac disturbances is important. Further understanding of individual susceptibility, especially in preterm infants, is needed both to clarify pathogenesis and to develop responsible public health practices.

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REFERENCES

Prolongation of the QT Interval and the Sudden Infant Death Syndrome

ABBREVIATIONS. SIDS, sudden infant death syndrome; ECG, electrocardiogram; LQTS, long QT syndrome.

A recent article by Peter Schwartz and his colleagues1 in Italy in the New England Journal of Medicine implicated prolongation of the QT interval in the sudden infant death syndrome (SIDS),
Prolonged QTc as a Risk Factor for SIDS

ABBREVIATIONS. SIDS, sudden infant death syndrome; ECG, electrocardiogram.

Peter Schwartz and colleagues have recently published the results of a 19-year study relating prolongation of the QTc to the sudden infant death syndrome (SIDS). The authors performed electrocardiograms (ECGs) on 3- to 4-day-old infants and obtained information on whether they had survived to their first birthday for 33,034 infants. The authors report that QTc for the 24 SIDS deaths, the other 10 deaths, and a group of 9725 surviving infants. Half of the SIDS deaths had a QTc of >440 msec (97.5 centile), while the QTc in none of the other deaths was >420 msec. They cautiously propose use of a prolonged QTc in the newborn period as a marker for risk for SIDS and suggest treatment with β-blockers for infants in epidemiologic risk groups.

The first consideration in commenting on this

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# Prolongation of the QT Interval and the Sudden Infant Death Syndrome

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