Late Diagnosis of Coarctation Despite Prenatal Ultrasound and Postnatal Pulse Oximetry

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abstract

OBJECTIVES: To determine what contribution prenatal ultrasound screening and neonatal pulse oximetry screening (POS) make to the timely diagnosis of neonatal coarctation of the aorta (CoA).

METHODS: We identified infants and fetuses diagnosed with isolated CoA in our referral area between 2003 and 2012 who died without surgery, underwent surgical repair before 2 months of age, or were terminated after a prenatal diagnosis. Clinical data were collected from hospital charts.

RESULTS: Only 3 of the 90 cases were diagnosed prenatally. Two of the 3 were born alive and in 1 case the couple opted for termination of pregnancy. Nineteen of the remaining 87 cases were born in units that used POS (hand and foot) and 4 of 19 screened positive. Of the remaining 83 cases, 46 were discharged undiagnosed (7 after nondiagnostic echocardiography), including 9 with a murmur and weak femoral pulses and 8 with a murmur and normal pulses. One was diagnosed postmortem after dying at home, and 22 of the remaining 45 discharged infants were in circulatory failure on readmission. Five of the patients who were not discharged died without surgery and undiagnosed CoA was the most probable cause of death in 2 of these patients.

CONCLUSIONS: The contribution of prenatal ultrasound screening and postnatal POS to the timely diagnosis of CoA was low. Careful physical examination of all newborns therefore continues to play a fundamental role in detecting this life-threatening cardiac defect, and better screening methods need to be developed.

WHAT’S KNOWN ON THIS SUBJECT: Neonatal coarctation of the aorta (CoA) is a life-threatening cardiac defect, but because symptoms may be lacking initially, newborns with this defect are frequently discharged from the hospital undiagnosed. Delayed diagnosis of CoA is associated with increased morbidity and mortality.

WHAT THIS STUDY ADDS: This population-based study analyzes the contribution of prenatal ultrasound and postnatal pulse oximetry screening to the timely diagnosis of neonatal CoA. Both screening methods had low sensitivity for CoA. Nearly half of all newborns with isolated CoA were discharged undiagnosed.