

Pulse Oximetry Screening as a Complementary Strategy to Detect Critical Congenital Heart Defects.

Meberg A., Andreassen A., Brunvand L., Markestad T., Moster D., Nietsch L., Silberg I.E., Skålevik J.E. *Acta Paediatr.* 2009 Apr;98(4):682-6.

Objective

To compare strategies with and without first-day of life pulse oximetry screening to detect critical congenital heart defects (CCHDs).

Method

Population based study including all live born infants in Norway in 2005 and 2006 (n = 116 057). Postductal (foot) arterial oxygen saturation (SpO₂) was measured in apparently healthy newborns after transferral to the nursery, with SpO₂ < 95% as cut-off point. Out of 57,959 live births in the hospitals performing pulse oximetry screening, 50,008 (86%) were screened.

Results

A total of 136 CCHDs (1.2 per 1000) were diagnosed, 38 (28%) of these prenatally. Of the CCHDs detected after birth, 44/50 (88%) were detected before discharge in the population offered pulse oximetry screening (25 by pulse oximetry), compared to 37/48 (77%) in the non-screened population (p = 0.15). Median times for diagnosing CCHDs in-hospital before discharge were 6 and 16 h after birth respectively (p < 0.0001). In the screened population 6/50 (12%) CCHDs were missed and recognized after discharge because of symptoms. Two of the six missed cases failed the pulse oximetry screening, but were overlooked (echocardiography not performed before discharge). If these cases had been recognized, 4/50 (8%) would have been missed compared to 11/48 (23%) in the non-screened population (p = 0.05). Of the cases missed, 14/17 (82%) had left-sided obstructive lesions.

Conclusion

First-day of life pulse oximetry screening provides early in-hospital detection of CCHDs and may reduce the number missed and diagnosed after discharge.