Pulse oximetry as a screening test for critical congenital heart disease in term newborns.

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BACKGROUND: Pulse oximetry has been suggested as a screening test for congenital heart disease (CHD) in asymptomatic newborns. However, most newborns in Mexico are discharged from the hospital without this evaluation.
OBJECTIVE: To evaluate pulse oximetry as a screening test for critical congenital heart disease (CCHD) in term newborns.

METHODS: We conducted a cross-sectional study in term newborns between July 2010 and April 2011. Pulse oximetry was determined before hospital discharge; in case of post-ductal oxygen saturation < 95%, a Doppler echocardiogram was performed.

RESULTS: From 1,037 newborns screened, two had CCHD, one had pulmonary atresia and ventricular septal defect, and one Ebstein´s anomaly. Minor CHD was present in 10 babies. The overall prevalence of CHD was 11.5 per 1000 live births, and the prevalence of CCHD was 3.9 per 1000 live births. For those with critical disease, pulse oximetry had a sensitivity of 100%, specificity 98.8%, positive predictive value 14.2%, negative predictive value 100%, and positive likelihood ratio of 86.2. In regression analysis, oxygen saturation, respiratory frequency, and postnatal age were related with CCHD.

CONCLUSIONS: Pulse oximetry had a good sensitivity and specificity for the identification of critical congenital heart disease in term newborns. Low oxygen saturation, higher respiratory frequency, and early postnatal age were related with congenital heart disease.