

A Study on Clinical Screening of Neonatal Congenital Heart Disease in Jinjiang City

Zhang YL, Bai HT. *Int J Gen Med*. 2021 Jun 17;14:2599-2609. doi: 10.2147/IJGM.S311582.

Objective: This study explored the feasibility of congenital heart disease (CHD) screening by combining a percutaneous oxygen saturation (POX) test with cardiac auscultation method in neonates.

Methods: POX tests and cardiac auscultation were used concurrently to screen 8305 neonates born in Jinjiang City Hospital between January 2016 and December 2018 for CHD. The positive screening results (positive POX or positive cardiac auscultation) were confirmed with echocardiography, while any false negative results were identified through follow-up and parent feedback. Sensitivity, specificity, positive/negative predictive values, Youden's index, and the area under the receiver operator characteristic curve (AUC) of the single use and combined use of the two methods (a POX test and auscultation) were calculated, and the results were compared.

Results: Among 8305 neonates, 22 cases were positive for POX alone, of which 6 cases were diagnosed by echocardiography; 83 cases were positive for cardiac auscultation alone, of which 47 cases were diagnosed by echocardiography; and 8 cases were positive for both methods, all of which were confirmed by echocardiography. Four more cases were confirmed during follow-up. Sensitivity, specificity, and the positive and negative predictive values of combined screening were 93.85%, 99.37%, 53.98% and 99.95%, respectively, while Youden's index was 0.93, and the AUC was 0.966. Sixty-five cases of CHD were diagnosed, the total incidence being 7.82%, and a ventricular septal defect was found to be the most common type.

Conclusion: The combination of POX test and cardiac auscultation as a screening method for neonatal CHD can reduce missed diagnoses and increase the detection rate of CHD in newborn infants.