

Comparison of oximeters for the detection of critical congenital heart diseases

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Introduction and objectives: In some centers, the pulse oximetry is not performed with the justification of lack of the adequate oximeter. We compared the effectiveness of two brands of oximeters to perform it.

Methods: In neonates, a term of the joint housing service of the Hospital General de Occidente in Zapopan, Jalisco, Mexico, from May to November 2018, an examination of the characteristics of the American Academy of Pediatrics with both oximeters (ChoiceMMed[®] and Masimo SET[®]) was carried out, comparing the detection of critical congenital heart disease, time of intake, and false positives.

Results: In each group, 1022 patients were analyzed; with the Masimo SET[®] oximeter, 83 positive tests were obtained (8.12%), of which 22 cases had some heart disease (26.5%), which represents a sensitivity of 100%, specificity of 93.9%, positive predictive value of 26.5%, and negative predictive value of 100% (odds ratio [OR]: 0.73; 95% confidence interval [CI] 0.6-0.8). With the ChoiceMMed[®] oximeter, 168 positive tests were obtained (16.4%), of which 22 cases had some heart disease (13.09%), with a sensitivity of 100%, specificity of 85.4%, positive predictive value of 13.09%, and negative predictive value 100% (OR: 0.86; 95%CI: 0.8-0.92). Regarding the time to perform the cardiac sieve, the mean in minutes of the Masimo SET[®] oximeter was 5.38 and the ChoiceMMed[®] oximeter was 9.7 min.

Conclusions: The ChoiceMMed[®] oximeter contains a large number of false positives and a greater number of echocardiograms and comparatively longer cardiac screen printing with Masimo SET[®], however, both with a negative predictive value of 100% eliminating such excuses.