

Clinical Outcome Prediction in Pediatric ARDS by Chest Radiograph Severity Scoring

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Abstract

Aim: To assesses the severity and prognosis of pediatric acute respiratory distress syndrome (PARDS) based on a chest radiograph (CXR) scoring method. **Methods:** 116 PARDS and 463 CXRs were selected. General demographics, pulmonary complications, and 28-day mortality of the patients were recorded. Subgroup divided by prognosis (survive, death) and etiology (infection, non-infection). CXR scores were calculated for each of the four quadrants by infiltration extent (0-4) and density (1-3). The ROC curve and survival curve were established, the cut-off score for predicting prognosis was set. **Results:** The agreement between two independent observers was excellent (ICC=0.98, 95%CI:0.97-0.99). The hospital length of stay of death group was shorter than survive group, whereas the percentage of pulmonary complication of death group were significantly higher than survival group (all $p<0.05$). Day 3 score was independently associated with better survival ($p<0.001$). The area under the curve of ROC was 0.773 (95%CI:0.709-0.838). The cut-off score was 21 (sensitivity 71.7%, specificity 76.5%), OR was 9.268 (95%CI: 1.257-68.320). The pulmonary complication showed an OR of 3.678 (95%CI: 1.174-11.521) for the prediction. **Conclusions:** CXR score can be used in PARDS for predicting prognosis and has a great agreement among radiologist and pediatrician. Pulmonary complication, Day 3 score whether greater than 21 points have a strong predictive effectiveness.

Original Article

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