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Title: Evaluation of noninvasive positive-pressure ventilation in newborns after anastomosis with esophageal atresia

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Body: Introduction: The frequency of esophageal atresia (EA) is 1:3000 newborns. Esophageal atresia related surgery treatment within 6-72 hours after birth. The use of two levels of positive pressure ventilation (BPAP), related to the conventional respiratory therapy (CRT) in the postoperative period with EA in infants can reduce pulmonary complications. Objectives: To evaluate the safety and compliance of preventive application of BPAP associated with EA in postoperative period. Methods: 20 patients undergoing anastomosis with EA were randomly allocated in one of the groups. Patients of the Control Group (CG) were treated only with conventional respiratory therapy, compared to BPAP group (BG) (in addition to conventional respiratory therapy in postoperative period the patients were subjected to 120 minutes of noninvasive ventilation by two levels (BPAP) once a day). All patients were evaluated for oxygen saturation, heart rate, respiratory frequency, tidal volume, systolic and diastolic blood pressure. Evaluations were performed immediately after extubation 24h and 48h. Results: In CG 58% of patients had some degree of atelectasias, in comparison to 44% of BG ($P=0.691$). The vital capacity was higher in the BG postoperatively ($P<0.015$). All the other gasometric, hemodynamic and manometric parameters were similar between groups. Conclusion: Anastomosis after EA leads to deterioration of respiratory function postoperatively, and the application of noninvasive positive pressure ventilation (BPAP) in postoperative period may be beneficial to restore lung function more quickly, safely, and well accepted by patients.