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Comparison of prone positioning and chest physiotherapy on duration of intubation in premature infants admitted to neonatal intensive care unit: A randomized controlled clinical trial

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Background: Prone positioning and chest physiotherapy are effective factors in ventilation and oxygen supply to tissues.

Objective: This study aimed to compare the effects of prone positioning and chest physiotherapy on duration of intubation in premature infants.

Patients & Methods: This randomized clinical trial was done on 69 premature infants under the ventilator who were hospitalized in Neonatal Intensive Care Unit (NICU) of Shiraz Hazrat-e-Zainab Hospital in 2014. The eligible infants were randomly divided into three groups, including two intervention groups and a control group, using permuted block randomization. In 24 hours, the infants in the first intervention group were placed in prone position for 2 hours and in other positions for an hour and the process continued. In addition to prone positioning, the second intervention group received chest physiotherapy every 8 hours. Each hour, vital signs and oxygen saturation were recorded according to the order recorded in Arterial Blood Gas (ABG) records. The results and changes in ventilation were recorded, as well. After all, the data were entered into the SPSS statistical software, version 13 and were analyzed using the indices of descriptive statistics (mean and standard deviation), ANOVA, chi square test and post-hoc test.

Results: The mean duration of intubation in prone positioning along with chest physiotherapy, prone positioning alone and control groups was 3.22±0.95, 5.78±2.32 and 6.83±1.43 days, respectively ($p<0.001$). Besides, the rate of re-intubation in prone positioning along with chest physiotherapy, prone positioning alone and control groups was 8%, 17%, and 52%, respectively ($p=0.002$). Durations of intubation and re-intubation were significantly lower in prone positioning along with chest physiotherapy compared to prone positioning alone.

Conclusion: Due to the lower duration of intubation while prone positioning with chest physiotherapy, medical staff working in NICUs can use these two methods while taking care of premature infants to accelerate their separation process from the ventilator.

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