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Title: Effects of use of Boussignac CPAP on development of post-operative atelectasis

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Body: Background: Boussignac CPAP system is a method to apply CPAP through a special valve system. Aim: Patients who had a high likelihood of postoperative atelectasis undergoing abdominal surgery were included in the study. It was aimed to evaluate the development of atelectasis and its effects on PFT parameters through utilisation of Boussignac CPAP system. Patients and method: A total of 28 patients were included in our study and were randomized into two groups. Conventional methods (incentive spirometry, respiratory physiotherapy) were scheduled for the first group and Boussignac CPAP treatment in addition to conventional methods was scheduled for the second group. Boussignac CPAP system was applied to patients with spontaneous respiration for 3 days as 6 times and 15 minutes on each session. Pre and post application pulmonary function tests(PFT) parameters, chest X-Ray findings and radiological atelectasis scores were evaluated. Findings: Mean age was 65.4 years and 57.1% were male. There was not any significant differences in the Boussignac CPAP group and control group between location of incision, operation time and presence of pulmonary disease. Preoperative chest X-Ray findings were similar($p>0.05$). In the Boussignac CPAP group, postoperative radiological atelectasis score was significantly lower than control group($p<0.05$). In CPAP group, no decline in oxygen saturation and oxygen partial pressure was observed unlike control group. Significant decrease was observed in FVC that is one of PFT parameters in postoperative period. Conclusion: Our findings suggest that development of post-operative atelectasis might be decreased, thus oxygenation might be improved by use of Boussignac CPAP.