

ABSTRACT

The main objective: The aim of this study was to evaluate the effect of respiratory physiotherapy with the use of Threshold PEP® device on respiratory function among people hospitalized after cardiac surgery with access via median sternotomy.

Methods: During the hospitalization in the Nemocnice České Budějovice a.s. the following measurements were taken - peripheral oxygen saturation (SpO₂), maximum inspiratory pressure (MIP), expiratory pressure (MEP) and chest anthropometry. In addition, a questionnaire was used where probands reported their subjective sense of health, including pain and dyspnoe ratings according to the Borg scale. The questionnaire took into account the presence of drainage, cough and associated diseases such as asthma, COPD or COVID-19.

Results: The measurement methods proved to be suitable for practical use. The results showed no statistically significant changes in the experimental group in the parameters of MIP ($p=0,507$), MEP ($p=0,339$), dyspnoe ($p=0,266$) and mesosternal flexibility ($p=0,076$). There was a statistically significant change in xiphosternal flexibility ($p=0,0022$) and pain ($p=0,003$). There was a statistically significant change in peripheral oxygen saturation ($p=0,014$) which was later concluded not to be clinically relevant.

Conclusion: During the study, respiratory function improved in the experimental group with Threshold PEP®, but the change was not statistically significant. The patients within the experimental group experienced a reduction in pain and an improvement in chest expansion mechanics.

Key words: respiratory physiotherapy, cardiac surgery, sternotomy, MIP, MEP, Threshold PEP®