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LETTER TO THE EDITOR

Letter to the Editor regarding ''Effectiveness of preoperative breathing exercise interventions in patients undergoing cardiac surgery: a systematic review''

Carta ao editor relativa ao artigo «Eficácia de uma intervenção baseada em exercícios respiratórios em pessoas a aguardar cirurgia cardíaca: uma revisão sistemática da literatura»

To the Editor:

We read with great interest the article by Rodrigues et al. entitled ''Effectiveness of preoperative breathing exercise intervention in patients undergoing cardiac surgery: a systematic review''.[1] In their paper, the authors performed a systematic review of the literature to assess the impact of breathing exercise training on postoperative pulmonary complications (PPC) and length of hospital stay. Given the importance of respiratory therapy in cardiac patients, we hoped to find a more accurate description of the interventions and outcomes mentioned. Also, considering some of the terms used for the literature research – which are vague and refer to non-comparable interventions – as well as of some used in the text, we are concerned about the authors' familiarity with the concepts they are discussing and with the potentially incorrect interpretation and selection of the studies included. As an example, 'breathing exercise therapy' is a vague and imprecise term, as are 'mobilization scheme', 'respiratory parameters' and 'respiratory performance', which were not precisely described. The interventions of the included randomized clinical trials (RCTs) were not limited to diaphragmatic breathing, inspiratory muscle training (IMT) or incentive spirometer, as indicated by the authors in Table 2; therefore, their conclusions concerning the techniques targeted by the review may be biased. Thus, stating that a ''breathing therapy program'' could only include IMT, breathing exercises or both is reductive and incorrect. We would like to clarify that respiratory physiotherapy includes a wide range of interventions (succinctly: breathing strategies and techniques for lung expansion, bronchial hygiene techniques, respiratory muscle assessment and training, and exercise) aimed at specific respiratory disorders.[2,3] More specifically, breathing techniques can be used for different purposes[2–4] and may include diaphragmatic breathing (which reduces respiratory rate and dyspnea, and improves ventilation), deep breathing exercises (which improve lung expansion and ventilation, noting, however, that volume recruitment should be done using an Ambu bag, cough assist device or ventilator), and pursed lip breathing (which reduces lung hyperinflation, respiratory rate and dyspnea, resulting in more efficient ventilation). For surgical patients, breathing control and ventilation/perfusion ratio optimization techniques (considering the increased risk of lung atelectasis due to restrictive and shallow breathing patterns secondary to sternal pain), bronchial hygiene techniques (especially among mechanically ventilated patients in view of the increased respiratory infection risk and the presence of non-ventilated lung areas), IMT (since pain and sternotomy may result in temporary decreased respiratory muscle strength), and aerobic exercise and resistance training (as recommended for all hospitalized patients) are indicated.

Finally, we strongly disagree with the authors when they question the need to use threshold IMT, since they are comparing interventions with different purposes and indications. Besides, this was not analyzed or discussed in any of the RCTs included. Only two studies did not include respiratory muscle training with threshold loading techniques. Moreover, in one of these no statistically significant difference in PPC was found between control and intervention groups. The final naive and erroneous assumption that any kind of breathing therapy is equally effective is a hasty conclusion, since it was not within the scope of the review and no comparative analysis was conducted.

The subject is pertinent. Despite the limitations pointed out above, we wish to highlight the importance of respiratory therapy in cardiac patients before and after surgical intervention, since it prevents PPC.[2,4] Further studies are needed in order to determine the beneficial effect of specific preoperative respiratory interventions on post-surgical complications. These interventions may be directed to specific goals and to the observed alterations, and should be individualized and judiciously performed by trained professionals.

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Conflicts of interest

The authors have no conflicts of interest to declare.

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