



The correlation of preoperative six-minute walk distance and postoperative pneumonia after lung resection

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Hattori *et al.* conducted a single-center retrospective analysis to examine the association between preoperative 6-min walk distance (6MWD) and postoperative complications in terms of pneumonia following lung resection for malignant tumors (1).

A total of 321 patients were analyzed. Postoperative pneumonia developed in 13 patients and was associated with a significantly longer hospital stay. In those patients, preoperative 6MWD was significantly shorter than that of patients without pneumonia. Furthermore, a 6MWD of 450 m or less was identified as a threshold for predicting postoperative pneumonia with 69.2% sensitivity and 71.1% specificity. The authors concluded that preoperative 6MWD is significantly associated with the development of postoperative pneumonia in patients receiving lung resection for malignant lung disease.

Over the last years, several groups have aimed to establish the 6MWD as a standard tool for evaluating the exercise capacity of patients undergoing lung resections for malignant disease. Already in 2013 Rick *et al.* investigated the changes in 6MWD of 227 patients following oncological rehabilitation after lung resection due to a malignant tumor (2). This work showed a significant improvement of the 6MWD after pulmonary rehabilitation. Furthermore, a low correlation of the 6MWD was observed before and after rehabilitation. At that time authors concluded that the

6MWD may be a suitable tool to assess respiratory function in patients undergoing lung resection for malignant disease.

Following this concept, Ha and colleagues proposed the addition of the 6MWD as a standard tool to the current guideline of risk stratification for thoracotomy and major anatomic resection in their systematic review of literature (3). In a current publication, Kubori *et al.* compared the stair-climbing test and the 6MWD after video-assisted thoracoscopic surgery (VATS) lobectomy in 14 patients (4). In this very small cohort, the stair-climbing test showed more sensitivity in detecting lung resection-induced changes in cardiorespiratory fitness compared to the 6MWD.

Despite the retrospective fashion of the study, the major concern of the current work by Hattori and colleagues, which has been also addressed by the authors in the limitations section, is the small number of events with a total of 13 postoperative pneumonia cases, which did not allow performing a multivariate regression analysis to precisely identify confounders for risk factors for postoperative pneumonia. Nevertheless, the message of this work is very important and in accordance with the above-mentioned previous works, emphasizing the importance of the 6MWD, which is simple and inexpensive tool, as a part of the perioperative screening for patients with lung malignancies undergoing pulmonary resections.

Fugazzaro *et al.* recently published the PUREAIR protocol, which is an open-label randomized controlled trial investigating patients with lung cancer in early stages (stages I–II) eligible for surgery (5). This study compares between standard perioperative physiotherapy and intensive perioperative pulmonary rehabilitation. The main outcome is the long-term exercise capacity measured with the 6MWD. The results of this study will surely clarify the significance of the 6MWD in this context. Irrespective of these results, 6MWD might be a simple, adjunct routine assessment test in the future for patients undergoing lung surgery.

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Footnote

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