

Assessment of Pulmonary Function Before and After Mitral Valve Replacement is Important

Mitral Kapak Değişimi Öncesi ve Sonrası Pulmoner Fonksiyon Değerlendirmesi Önemlidir

Türkan Kudsioglu

Sağlık Bilimleri Üniversitesi, Siyami Ersek Göğüs Kalp ve Damar Cerrahisi Merkezi, Anesteziyoloji ve Reanimasyon Kliniği, İstanbul, Türkiye

Respiratory functions affecting morbidity and mortality in open heart surgery are the most important preoperative risk factors. After cardiopulmonary bypass, pulmonary function tests, especially in FEV1 and FVC, are reduced by 60-70 %. Impaired respiratory functions return to normal after 3-4 months.

If the patients have impaired respiratory functions due to preoperative COPD postoperative intubation time, length of stay in the intensive care unit is prolonged. The length of stay in ICU affects morbidity and mortality and causes cost increase (1).

Mitral valve disease affects pulmonary vascular structure and causes pulmonary hypertension. Changes in pulmonary physiology and development of pulmonary hypertension in mitral valve patients lead to a decrease in lung volumes(2). Especially in patients with mitral stenosis, restrictive pulmonary disease, respiratory muscle weakness and dyspnea development are more frequent(3). Dyspnea is multifactorial in mitral valve disease. High left atrial pressures and ultimately pulmonary hypertension are the main responsibilities. Airway obstruction further contributed to pulmonary dysfunction in these patients. As the functional residual capacity decreases by 50%, the atelectasis tendency increases. These patients undergoing mitral valve surgery may have a longer duration of ICU.

In the current edition of the journal, Yasemen Durak Erdinc et al (4) showed that patients who underwent mitral valve replacement with preoperative respiratory disease stayed in intensive care unit longer than those without respiratory disease. (P <0.05) They also found that there was a negative correlation between the duration of intubation and the forced expiratory volume in first second in the study (p <0,05).

In these patients, preoperative COPD diagnosis and treatment is important to reduce postoperative pulmonary mortality and morbidity. As shown in this study, a high FEV1 value is a valuable parameter to determine postoperative morbidity(4).

Therefore, preoperative airway obstruction diagnosis and treatment in patients with mitral valve replacement with cardiopulmonary bypass can reduce the need for mechanical ventilation and shorten the length of hospital stay.

REFERENCES

1. Halbert RJ, Natoli JL, Gano A, Badamgarav E, Buist AS, Mannino DM. Global burden of COPD: Systematic review and meta-analysis. The European respiratory journal 2006;28:523-32.
2. Pankaj Saxena, Suvitesh Luthra, Rajinder Singh Dhaliwal, Surinder Singh Rana, and Digambar Behera. Early changes in pulmonary functions after mitral valve replacement. Ann Thorac Med. 2007 Jul-Sep; 2(3): 111-117. doi:10.4103/1817-1737.33699
3. Palacios S, Perez O, Flores G, Olmos A. Improvement in inspiratory muscle function in patients with mitral stenosis after percutaneous mitral valvuloplasty. Preliminary communication. Rev Med Chil. 2000;128:467-74.
4. Durak Erdinç Y, Saraçoğlu A, Dalar L, Saraçoğlu KT, Demirhan Ö, Sağbaşı LE. reoperative Airway Obstruction as a Cause of Morbidity in Patients Undergoing Mitral Valve Replacement. Kocaeli Med J 2018; 7; 1:70-76.

İletişim / Correspondence:

Dr. Türkan Kudsioglu

Sağlık Bilimleri Üniversitesi, Siyami Ersek Göğüs Kalp ve Damar Cerrahisi Merkezi, Anesteziyoloji ve Reanimasyon Kliniği, İstanbul, Türkiye

E-mail: hasan.sikar@me.com

Başvuru Tarihi: 31.03.2018

Kabul Tarihi: 31.03.2018