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News

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Simple Walking Test Helps Predict Risk for Cognitive Issues After Heart Surgery

Research highlights the need for a more comprehensive evaluation of patient readiness for surgery

CHICAGO — The distance a patient can walk in 6-minutes before a heart operation may be a clue to whether that patient will develop problems with memory, concentration, and attention after the procedure, according to a study published online today in *The Annals of Thoracic Surgery*.

Broadly speaking, a decline in cognitive performance after surgery is known as postoperative cognitive dysfunction (POCD). With POCD, a patient's mental aptitude is weaker after surgery, resulting not only in a greater risk of complications, but also a lesser quality of life. Cognitive deterioration is increasingly recognized as a common occurrence after major surgery, especially among older adult patients.

"This study indicates that the easy and inexpensive 6-minute walk distance (6MWD) is a valuable assessment for identifying patients at a high risk for POCD," said Kazuhiro Hayashi, PT, MSc, of Nagoya University Hospital in Japan. "If we are able to identify patients who are at risk for POCD, we can provide early treatment and encourage them to better understand the dysfunction."

For this study, Hayashi and colleagues identified 181 patients who were undergoing non-emergency heart surgery between March 2014 and August 2015 at Nagoya University Hospital. The mean age of the patients was 71.4 years.

Patients performed the 6MWD test upon admission for their operations. Functional exercise capacity was measured by having patients walk the length of a predetermined course at their own pace while attempting to cover as much ground as possible in 6 minutes. The distance covered in that duration was measured to the nearest meter. According to the results of this study, a low 6MWD was an associated risk factor for POCD after cardiac surgery. In fact, the lower the 6MWD was, the more significant the reduction in cognitive function postoperatively was. Of the study participants, 51 (28%) developed POCD.

"It is increasingly recognized that a patient's fitness level has an impact on how well he/she does after a surgical procedure," said Rakesh C. Arora, MD, PhD, of St. Boniface Hospital in Winnipeg, Canada, who was not involved with this

KEY POINTS

- The 6-minute walk distance (6MWD) test is a valuable assessment for identifying patients at a high risk for cognitive deterioration.
- The lower the 6MWD score, the more significant the reduction in cognitive function after surgery was.
- Prehabilitation has the potential to reduce the risk and potentially avoid postoperative cognitive dysfunction.

research. “This study further highlights the need for the health care team to undertake a more detailed assessment of patients’ physical fitness before the operation. The 6MWD is an important component of this evaluation.”

According to Dr. Arora, the identification of patients at risk for POCD and other cognitive disorders should alert the health care team to consider modifying anesthetic and medication choices during and after the operations, as well as assist with discharge planning as patients transition to home. In addition, the health care team should consider strategies, such as prehabilitation, to optimize the patients’ fitness before their operations. Dr. Arora explained that prehabilitation includes a combination of exercise training, education, and social support intended to improve patients’ physical and psychological readiness for surgery.

“Prehabilitation may be of benefit to patients with poor physical fitness by improving postoperative recovery and post-discharge functional survival,” said Dr. Arora. “Patient self-management and follow-through are essential, however, as is the patient’s understanding of their health issues and their proposed plan of care.”

Hayashi agrees that a multidisciplinary approach, which includes elements such as prehabilitation, is key to a better assessment and treatment outcome. “Precise preoperative risk assessment for postoperative complications is critical, and when indicated, supervised exercise before an operation should be recommended to improve functional exercise capacity before heart surgery,” he said.

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Hayashi K, Oshima H, Shimizu M, Kobayashi K, Matsui S, Nishida Y, and Usui A. Preoperative Six-Minute Walk Distance is Associated with Postoperative Cognitive Dysfunction. DOI: 10.1016/j.athoracsur.2018.03.010.

Find comprehensive medical information presented for patients by leading experts in cardiothoracic surgery on the STS Patient Website (ctsurgerypatients.org). For a copy of *The Annals* article, contact Jennifer Bagley at 312-202-5865 or jbagley@sts.org.

Founded in 1964, The Society of Thoracic Surgeons is a not-for-profit organization representing more than 7,300 cardiothoracic surgeons, researchers, and allied health care professionals worldwide who are dedicated to ensuring the best possible outcomes for surgeries of the heart, lung, and esophagus, as well as other surgical procedures within the chest. The Society’s mission is to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, research, and advocacy.

The Annals of Thoracic Surgery is the official journal of STS and the Southern Thoracic Surgical Association. It has an impact factor of 3.700.