Preop Deep-Breathing Exercises Cut Pneumonia Risk After Cardiac Surgery

By Anne Harding

NEW YORK (Reuters Health) Jun 03 - Using an incentive inspirometer for a few weeks before cardiac surgery can help high-risk patients avoid pneumonia, new research confirms.

"The idea of the inspiratory muscle training before surgery is that if you increase your inspiratory muscle function before surgery, you can do your deep breathing exercises after surgery better and therefore the pulmonary complications can decrease after surgery," researcher Karin Valkenet of the University Medical Centre Utrecht in the Netherlands told Reuters Health.

On Wednesday at the American College of Sports Medicine’s annual meeting in Denver, she reported that cardiac surgery patients in her study who did not receive at least two weeks of preop inspiratory muscle training (IMT) were three times as likely to develop pneumonia.

Valkenet's study follows a 2006 paper in the Journal of the American Medical Association by another team from her center, which reported on 279 high-risk patients undergoing coronary artery bypass grafting (CABG) In that study, 6.5% of the IMT group developed pneumonia, compared to 16.1% of controls. Overall, 18% of the IMT group had postoperative pulmonary complications, compared to 35% of controls.

In the new study, Valkenet and her colleagues enrolled patients with diabetes, productive coughing in the previous five days, or impaired pulmonary function. Ninety-four such high-risk patients were given incentive inspirometers, trained to use them, and told to practice for 20 minutes a day at home. Their starting load was 30% of maximal inspiratory pressure, which they increased based on their perceived exertion.

Another 252 high-risk patients served as controls.

One patient in the IMT group developed pneumonia, compared to eight patients in the control group. While the difference was not statistically significant given the low number of events, Valkenet and her colleagues were able to show a relative risk of 2.9 for the patients who didn't undergo the training, based on a propensity score analysis.

"The data confirms the randomized, controlled data that was published earlier so that's very good news for us," Valkenet said.