

ARDS Predicted Mortality in Nontrauma Patients

BY BRUCE JANCIN
Denver Bureau

COLORADO SPRINGS — Nontrauma surgical ICU patients who develop acute respiratory distress syndrome have a 10-fold greater 30-day mortality than those without this complication, Dr. Shirin Towfigh reported at the annual meeting of the Western Surgical Association.

This observation, derived from analysis of a large, prospective, single-center acute respiratory distress syndrome (ARDS) registry, stands in marked contrast to the situation prevailing among trauma surgical ICU patients. Multiple centers have reported that in contemporary practice, ARDS in trauma surgery patients in the ICU isn't an independent predictor of increased mortality, said Dr. Towfigh of the University of Southern California, Los Angeles.

Although ARDS has historically been a major cause of mortality among the critically ill, the incidence of ARDS among surgical ICU patients has declined sharply during the past decade. However, nearly all prior studies of ARDS in surgical patients have been restricted to trauma patients. To round out the picture, Dr. Tow-

figh reported on 2,046 consecutive nontrauma surgical patients admitted to the ICU at USC during 2000-2005. All were evaluated daily for ARDS, as has been routine practice there since 2000.

The overall incidence of ARDS in the study population was 6.1%. But as has previously been reported, the rate among these nontrauma surgical ICU patients declined sharply over time, from 12.2% in 2000 to 2.1% in 2005, an 83% drop in 5 years.

"The cause of this is unknown, but we do know that over the past decade or so in our ICU we have managed our patients differently, using lung-protective ventilation strategies, infection control measures, early extubation protocols, and judicious use of IV fluids, which may have improved the incidence of ARDS," Dr. Towfigh said.

Patients who developed ARDS were an average of 3.6 years older than those who didn't. They were also sicker upon ICU admission, as reflected in a mean APACHE-2 score of 23.8, compared with just 5.3 in nontrauma surgical patients without ARDS, and they had roughly a 50% greater prevalence of obesity. In a multivariate logistic regression analysis, risk factors for ARDS were obesity and evi-

dence of sepsis, including tachycardia and use of pressors on admission.

Development of ARDS was associated with a 6.9-fold increased rate of mortality in the ICU, as well as with other major adverse outcomes. Other independent predictors of ICU mortality included the use of pressors, which conferred a 2.9-fold increased risk, and a positive fluid balance, with a 2.3-fold greater risk.

Nontrauma patients were admitted to the ICU from virtually all general surgery divisions. Patients from two divisions had a disproportionate incidence of ARDS: those admitted from acute care surgery represented 23% of all nontrauma surgical ICU patients but accounted for 46% of those who developed ARDS; and colorectal surgery patients made up 8% of the total ICU population but 11% of those with ARDS.

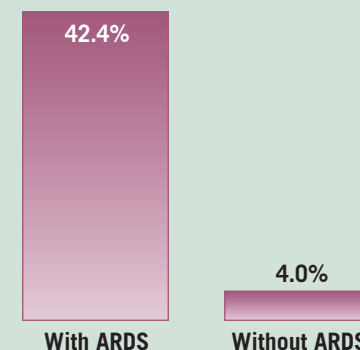
Discussant Dr. Christine S. Cocanour commented that the mortality associated with ARDS in nontrauma surgical ICU patients in this study is closer to the mortality seen with ARDS in the medical ICU.

"I would not be surprised if most of these nontrauma surgical patients with ARDS have underlying chronic medical comorbidities, like those patients in the

medical ICU—but they have surgical disease as well," said Dr. Cocanour of the University of California, Davis.

Dr. Towfigh replied that she and her coworkers plan to reanalyze their data to examine medical comorbidities as potential risk factors for ARDS among nontrauma surgical ICU patients. ■

Acute Respiratory Distress Syndrome Affects 30-Day Mortality



Note: Based on data for 2,046 nontrauma surgical intensive care unit patients.
Source: Dr. Towfigh

ELSEVIER GLOBAL MEDICAL NEWS

Minimally Invasive Approach Has Advantages in Lung Transplantation

BY MITCHEL L. ZOLER
Philadelphia Bureau

BOSTON — A novel, minimally invasive approach for lung transplant surgery produces small, cosmetically superior incisions and causes less pain than the conventional surgical method, according to results from a series of 116 patients.

In 68 patients treated with an anteroaxillary approach and 48 patients treated with a conventional approach, survival rates to 180 days after surgery were very similar—more than 90% in both groups. Patients in the anteroaxillary group were more likely to be extubated within 48 hours of surgery and less likely to need mechanical ventilation for more than 5 days, Dr. Yoshiya Toyoda reported at the annual meeting of the International Society for Heart and Lung Transplantation.

The anteroaxillary approach also preserved bilateral internal mammary arteries and the sternum, permitted rapid use of cardiopulmonary bypass, resulted in quick chest closure because of a small incision, and required less manipulation of the heart and phrenic nerve.

Because of these and other advantages, the anteroaxillary approach has become the standard surgical method used for lung transplants at the Universi-

ty of Pittsburgh Medical Center, where Dr. Toyoda is a thoracic surgeon and head of cardiopulmonary transplantation.

Dr. Toyoda reviewed his experience performing single- or double-lung transplantation at the university since the start of 2006. The conventional surgical approach, used in 48 patients, usually consisted of a posterolateral thoracotomy for single-lung transplantation, or a clamshell approach for double lung.

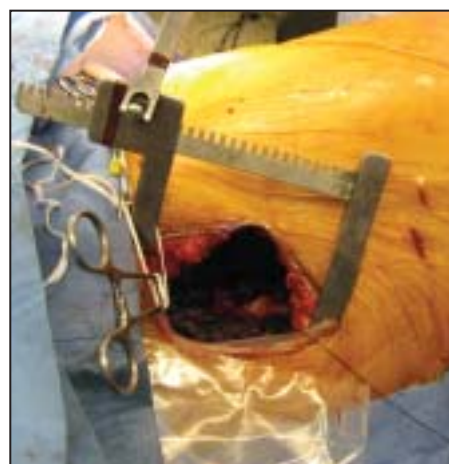
Since the new approach was first used last year, it has been performed on 68 patients, including 60 of 63 consecutive patients treated through April 2008. This series included 23 patients (34%) aged 65 or older, of whom 10 patients were aged 70 or older. The oldest patient he has treated with the anteroaxillary approach was 81.

Cardiopulmonary bypass use and time were similar in the two surgical groups, and the outcomes were also very similar. The survival rate to 180 days following surgery was 91% in the patients treated by the anteroaxillary route and 92% in patients having conventional surgery.

The anteroaxillary

approach led to a significant increase in the rate of patients becoming extubated within 48 hours of surgery (68% vs. 48% of those having conventional surgery), and a significant drop in the rate of mechanical ventilation greater than 5 days (15% vs. 35%). The average hospital length of stay was shorter with the anteroaxillary approach, 31 days, compared with 37 days with standard surgery, but this difference was not significant.

The only contraindications to use of the anteroaxillary approach are in patients who require multivessel coronary artery bypass surgery, and patients who need aortic repair in the region from the aortic root to the arch, Dr. Toyoda said. ■



An anteroaxillary incision decreases recovery time after lung transplantation.

COURTESY DR. YOSHIYA TOYODA

D-Dimer and CT Rule Out Pulmonary Embolism

BY DAMIAN McNAMARA
Miami Bureau

Inclusion of ultrasonography of the leg did not alter 3-month thromboembolic events in a large group of patients with suspected pulmonary embolism, compared with those assessed with a D-dimer test and multislice CT only, according to a randomized, multicenter study.

"We believe that our findings can be applied to a broad population with suspected pulmonary embolism, and that [the findings] lend support to the hypothesis that a negative MSCT [multislice CT] or ELISA [enzyme-linked immunosorbent assay] D-dimer measurement safely excludes pulmonary embolism in patients with a low or intermediate clinical probability of pulmonary embolism," Dr. Marc Righini, an internist in the division of angiography and hemostasis at Geneva University Hospital, and his associates wrote.

They assessed 1,819 consecutive outpatients with a suspected pulmonary embolism who presented to the emergency department at one of six medical centers in Europe from January 2005 to August 2006. The prevalence of pulmonary embolism was 20.6%. Men made up about 45% of the study population, mean age was 59 years, and

about 18% had a history of venous thromboembolism.

After exclusions, 855 patients were randomized to undergo double testing with a serum D-dimer assay and MSCT imaging. Another 838 patients had a triple assessment with serum D-dimer, venous compression ultrasonography of the leg, and MSCT.

The primary outcome was the risk of venous thromboembolism events at 3 months in patients who, because of the diagnostic tests' results, were not treated for pulmonary embolism. The thromboembolic risk at follow-up was 0.3% in the double-testing group (2 patients of 673 with complete follow-up) and 0.3% in the triple-testing group (2 patients of 686), thus indicating noninferiority of the double-testing strategy.

"Our results show that ultrasound is no longer required as a safety net for the identification of clots that might have been missed by MSCT," the authors wrote (Lancet 2008;371:1343-52).

The dual strategy was 24% less expensive than the triple-testing protocol, according to a comparison of mean diagnostic test cost per patient. "Therefore, our data do not support the routine use of ultrasound," they wrote. They added that ultrasound would allow avoidance of MSCT in only 1 of every 11 patients. ■