Joint Replacement Surgery Riskier At Low-Volume Hospitals

Patients who undergo elective total hip or total knee arthroplasty at hospitals with lower surgical volume had a higher risk of venous thromboembolism and mortality following the procedure. The complications following joint replacement surgery at low-volume sites may be reduced by modifying systems and procedures used before and after surgery according to the findings published in *Arthritis & Rheumatism*, a peer-reviewed journal of the American College of Rheumatology (ACR).

The ACR estimates that 27 million Americans over the age of 25 have doctor-diagnosed osteoarthritis and another 1.3 million U.S. adults suffer with rheumatoid arthritis. According to the Centers for Disease Control and Prevention (CDC) National Hospital Discharge Survey, roughly 230,000 total hip replacements and 543,000 total knee replacements were performed in the U.S. in 2007.

The current study explored the relationship between hospital procedure volume and surgical outcomes following primary total hip or total knee replacements. "With the large number of elective arthroplasty in the U.S, it is important to understand the impact of peri- and post-operative medical complications on the success of joint replacement surgery," said lead author Jasvinder Singh, MD, MPH of the University of Alabama. "Possible cardiac complications, blood clots, or infections increase patient morbidity and mortality risk, which can lead to higher healthcare utilization and costs."

Researchers used the Pennsylvania Health Care Cost Containment Council database to identify the number of patients who underwent total hip replacement and total knee replacement surgery in 2002 in the state. The mean age of patients in both groups was 69 years, and men comprised 43 percent of the total hip replacement cohort and 35 percent of the total knee replacement group. Hospital volume was categorized by less than 25 surgeries, 26-100, 101-200 (low-volume hospitals), and greater than 200 surgeries (high-volume hospitals) performed annually.

The findings show that patients who had primary total hip arthroplasty at low-volume hospitals were more likely to develop a pulmonary embolism (within 30 days of surgery) than those who had surgery at a high-volume hospital. One-year mortality was also higher for patients having total hip replacements at low-volume hospitals. Researchers found that for total knee arthroplasty, patients age 65 and older had significantly higher odds for one-year mortality when surgeries were performed at low-volume hospitals compared to higher volume hospitals.

The authors theorize that the causes of complications at low-volume hospitals could be connected to hospital procedures and peri- and post-operative care processes.

One example cited is differences in the selection of the best medication and device used to prevent blood clots following elective joint replacement surgery. The authors also suggest that the outcome of surgery is impacted by time of initiation and cessation of the clot prevention therapy. Dr. Singh concluded, "Further studies are needed to investigate whether the underlying reasons for poor surgical outcomes at low-volume hospitals are modifiable and which interventions may reduce complications for patients at these facilities."