Cementless hip implants are durable for at least 20 years

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Despite the common perception that total hip replacements last about 10 years, researchers at Rush University Medical Center have found that the devices are extremely durable, even 20 years after surgery.

Clinical and radiological evidence showed that 96 percent of the 124 cementless metal components assessed remained securely fixed in place 20 years post surgery, according to a study published in the May issue of the Journal of Bone and Joint Surgery. These components, which fit into the cup-shaped hip socket, or acetabulum, were among the first implants designed with a porous structure to allow bone to grow into the surface in the hopes of achieving long-term fixation.

"Our results confirm earlier work done at Rush and at other institutions: that cementless acetabular components work very well and that long-term biological fixation can be obtained," said Dr. Craig Della Valle, an orthopedic surgeon and principal author of the study.

Over the last two decades, the researchers have been studying the results for 204 total hip replacements performed at Rush in the mid-1980s in a group of 184 patients ranging in age from 20 to 84 years. Findings were previously reported at 10 and 15 years.

The implants studied were the Harris-Galante I acetabular component, whose design was based on pioneering research work done by Dr. Jorge Galante, former chairman of orthopedics at Rush and a co-author of this study. Earlier-generation implants, which relied on special cement to

secure the device to the patient's bones, had been shown to have higher rates of failure, particularly beyond 10 years.

"The hope was to provide more durable fixation, especially for younger patients with a longer life span," Galante said.

In the present study, the researchers analyzed results for 124 hip replacements in the 111 patients who were still alive 20 years or more after surgery. Since the previous report at 15 years, two metal cup implants, in addition to the three noted earlier, were found to be loose, or 4 percent of the 124 implants. Of the original 204 hip replacements, five cases, or 2.5 percent of the total, had failed. Two of these five implants were revised, but three were left intact because the patients did not suffer significant symptoms.

However, in nearly 20 percent of the patients still living 20 years post surgery, the plastic lining of the metal shell had worn enough that repeat, but less involved, surgery was required or recommended. Younger age strongly correlated with a higher risk of wear-related problems, the study showed.

"The average age of the patients in this study was 52 years, much younger than most patients who underwent hip replacements at the time. So the high rate of wear-related complications was not completely unexpected," Galante said.

Also, with time, the number of surgical revisions has increased due to osteolysis, or bone resorption as a result of the body's reaction to debris created by wear and corrosion of the metal implants.

"With time, the number of repeat surgeries due to wear and osteolysis has increased, as have the numbers of cases of osteolysis we identified radiologically. But with the newer, more wear-resistant bearing surfaces

we are now using, we believe that fewer patients today will need revision surgery for these reasons," Della Valle said.

"This longitudinal study gives us a wealth of data to use as we continue to improve on techniques and materials for total hip replacements," Galante said.

Source: Rush University Medical Center (news : web)