Concerns Over ‘Metal on Metal’ Hip Implants

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Some of the nation’s leading orthopedic surgeons have reduced or stopped use of a popular category of artificial hips amid concerns that the devices are causing severe tissue and bone damage in some patients, often requiring replacement surgery within a year or two.

In recent years, such devices, known as “metal on metal” implants, have been used in about one-third of the approximately 250,000 hip replacements performed annually in this country. They are used in conventional hip replacements and in a popular alternative procedure known as resurfacing.

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"The devices, whose ball-and-socket joints are made from metals like cobalt and chromium, became widely used in the belief that they would be more durable than previous types of implants.

The cause and the scope of the problem are not clear. But studies in recent years indicate that in some cases the devices can quickly begin to wear, generating high volumes of metallic debris that is absorbed into a patient’s body. That situation can touch off inflammatory reactions that cause pain in the groin, death of tissue in the hip joint and loss of surrounding bone.

Doctors at leading orthopedic centers like Rush University Medical Center in Chicago and the Mayo Clinic in Rochester, Minn., say they have treated a number of patients over the last year with problems related to the metal debris.

Artificial hips, intended to last 15 years or more, need early replacement far more frequently for reasons like dislocation than because of problems caused by metallic debris. But surgeons say that when metal particles are the culprit, the procedures to replace the devices can be far more complex and can leave some patients with lasting complications.

“What we see is soft-tissue destruction and destruction of bone," said Dr. Young-Min Kwon, an orthopedic surgeon at Massachusetts General Hospital in Boston.
Journal of Arthroplasty, urged doctors to use the metal-on-metal devices only with "great caution, if at all."

The limited studies conducted so far estimate that 1 to 3 percent of implant recipients could be affected by the problem. Given the large number of people who have received metal devices, that could mean thousands of patients in the United States. Reports suggest that women are far more likely than men to be affected.

All the major orthopedics makers sell these devices. Several companies said in statements that the implants did not pose a significant risk and that the incidence of metal debris problems was extremely low......

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......It is not clear whether some makers' devices are more prone to the debris problem than others. But some experts argue that some manufacturers, in a rush to meet the demand for metal-on-metal devices, marketed some poorly designed implants and that some doctors fail to properly implant even well-designed ones.

Dr. Amstutz, who developed a hip-resurfacing system sold by the Wright Medical Group, said he believed that resurfacing, which typically uses all-metal components, was safe. The procedure, which preserves more thigh bone than in a conventional hip replacement, is aimed at younger, more active patients who may need several hip replacements in their lifetimes.

Several orthopedic surgeons agreed that the procedure was generally safe. But those doctors said they were limiting resurfacing procedures to men under 55 with strong bones because other patients, including women, did not have good outcomes.

One hip device company, Smith & Nephew, which markets an implant called the Birmingham hip resurfacing system, said that data from an implant registry in Australia showed that fewer than 1 percent of patients using that product had reactions to metal.

Another major producer, the DePuy Orthopaedics division of Johnson & Johnson, said that, "as with other materials, metal-on-metal wear debris may cause soft tissue reaction in the area of a hip implant in a small percentage of cases."
All hip devices, regardless of the material, create debris as the ball rotates and rubs against the cuplike socket. But in metal-on-metal hips, either because of poor design or poor implant technique, the ball can sometimes press against the cup’s edge. This creates a chisel-like effect referred to as "edge-loading" that produces large volumes of microscopic metallic particles that can cause havoc in some patients.....

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