Do Cemented Implants Hold Up Better Than Cementless?

Big Question: Do Cemented Implants Hold Up Better Than Cementless?

When joint replacements are put in place, they can be cemented in place or the surgeon can use a cementless type that fills in with bone. Both are still commonly in use but many surgeons have switched to all cementless. They made this switch to avoid implant loosening that is more common with cemented implants. Loosening aside, the question of whether cemented survive longer (and better) than cementless has come up many times. This meta-analysis and systematic review may provide some answers.

Researchers from the Rothman Institute of Orthopedics at Thomas Jefferson University Hospital in Philadelphia took the time to examine the literature and analyze the combined results.

Out of 3,488 potential articles, 81 met the necessary criteria to be included. About half (45) were studies on the long-term results using cementless acetabular (hip socket) components. One-third (29) reported the long-term outcomes of cemented acetabular parts. And the rest (7) compared the two together. All acetabular implants were made of polyethylene (a type of plastic).

But we will warn you up front that it is clear that whether or not a component part survives (and how long it holds up) isn't only dependent on the cemented versus cementless factor. There are other variables that can affect acetabular survival. Some are based on the component itself such as surface finish, how long the polyethylene itself lasts (i.e., shelf life), and the method of sterilization for the component part. Some are patient-based influences including bone quality, patient activity level, and patient size (body mass index). And there are surgeon-based factors (e.g., level of experience and expertise, type of surgical approach used for the procedure).

Very few of the articles of high enough quality to be included adjusted or controlled for these other variables. That is a major limitation in answering the question of how using a cemented versus cementless implant compares when it comes to survivorship. There are just too many other variables that could be making the difference.

With that fact in mind, there were no major differences observed in revision rate between these two types of implants based on the cement versus no-cement factor. And revisions because of aseptic (without infection) loosening were equal between the two groups. However, more cemented acetabular components were still in place 10 years or more after implantation indicating longer survivorship of the cemented cup.

Age may be something important to consider. When comparing revision rate between cemented and cementless cups, they found an interesting phenomenon. Younger patients did better with uncemented cups. Older patients had better results with the cemented cups.

There may not be enough evidence to support the decision to switch to cementless acetabular components to avoid loosening. The results of this systematic review and meta-analysis suggest that despite improvements in cementless implants, their durability and survivorship doesn't match cemented implants. Thus, the literature does not yet prove the superiority of the cementless acetabular component over the cemented type.

More and more older adults are expected to have hip replacements in the coming years. With the current high rate of revisions, surgeons are seeking ways to avoid second surgeries for these patients. More research is needed to sort out the various factors (or combination of variables) that may be influencing revision rates and survivorship of hip implants. Finding the optimal choice of fixation type will have to be the focus of

future studies to reach a final answer to the question of which is better: cementless or cemented?

Reference: Nader Toossi, MD, et al. Acetabular Components in Total Hip Arthroplasty: Is There Evidence That Cementless Fixation is Better? In The Journal of Bone and Joint Surgery. January 16, 2013. Vol. 95A. No. 2. Pp. 168-174.