

Reliability and Long-term Results of Ceramics in Orthopaedics

4th International CeramTec Symposium March 13, 1999

Laurent Sedel and Gerd Willmann

77 figures

34 tables



1999
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Preface 4th Int. CeramTec Symposium

It is a great honour and privilege for me to have been invited as President of the 4th International Symposium on Ceramics organized by CeramTec company in March 1999. This meeting that I did attend once in the past was really of very high scientific level. International participants with different backgrounds surgeons or engineers, from different countries and from different companies clearly expressed the open mind of the organisers. Interdisciplinary discussions were conducted about wear, clinical outcome, sliding properties, biomechanics as well as some legislation problem. Very interesting discussions took place about guidelines regarding revision strategy or how to conciliate materials scientists expertise and surgeons awareness of risk evaluation. All these discussions were of real value and could serve in the future to establish clear guidelines to help surgeons, engineers and lawyers when some problems occur regarding ceramic component fracture, implant retrieval and revision strategy.

We heard experiences from Germany, Italy, Japan, Spain, Belgica, Austria, Australia. They addressed different issues and failures rate were sometimes important. But the overall conclusion were on the success of this alumina on alumina couple that demonstrated low wear, excellent sliding properties and excellent biological tolerance. At revision, there was few macrophagic reactions and it appears that this couple compared very well with metal on PE or with the

«come back» metal on metal. More basics research on ceramics characteristics conducted by F. Prudhommeaux, on simulators studies conducted by J. Fisher, on heat generation conducted by G. Bergmann, and on new materials conducted by A. Toni gave many informations about scientific aspects of the field.

Then alumina on alumina couple is a success in the long term. Safety has to be improved and security control always conducted in order to avoid any problems, breakage, wear. Some issues are still under discussion. They concerned bone adaptation to hardness of ceramics, metal backed or polyethylene backed necessity in order to avoid this elasticity mismatch.

The very fast development of this material proved the validity of the choice made some 30 years ago by people such as Pierre Boutin in France and H. Mittelmeier in Germany, even if some other pioneers such as P. Griss abandoned early this material.

Then a great thank to Doctor Willman, to Doctor Butermilch and the CeramTec company that organised this very interesting high levelled symposium. In the future, we hope that another meeting could be conducting dealing in deep with some aspects already addressed and with some others. This will be undertaken in Stuttgart on Febr. 18 and 19, 2000.

Prof. Dr. L. Sedel (Paris)

May 1999

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Preface Proc. 4th Int. CeramTec Symposium 1999

Ceramics in THR offer the option to reduce wear wear debris and to solve the problem of particle induced osteolysis. From the beginnings in the 1970s, the field of ceramics in hip joint replacement surgery has expanded greatly, with far more than 2.5 million ceramic components used worldwide since the beginnings. Right from the beginning the research was always interdisciplinary. I think that one of the most important achievement in bioceramics is the cooperation between material scientists, engineers and surgeons.

The development of joint replacements with ceramics femoral heads and ceramics acetabular components is still ongoing in North America, all over Europe, Australia and Japan. One of the objectives of the CeramTec Symposium is and always will be to compile all the results of clinical and technical research and developments and to share them with surgeons and engineers from all over the world.

Prof. W. Puhl (Ulm, Germany), the President of the previous three symposiums, had proposed that the future presidents should be surgeons from other countries than Germany to underline that the CeramTec Symposiums are really international ones. I am Glad Prof. L. Sedel of Paris had accepted to be the President of the 4th International CeramTec Symposium on RELIABILITY AND

LONG-TERM RESULTS OF CERAMICS IN ORTHOPAEDICS which was held in Stuttgart, Germany on March 12 and 13, 1999. Prof. Sedel was assisted by Chairman Prof. Neumann (Magdeburg, Germany), Dr. Toni (Bologna, Italy) and Prof. Stock (Braunschweig, Germany).

It has become a tradition that CeramTec at the occasion of its Symposium awards a prize for outstanding studies with regard to the problems of wear in endoprostheses. This year's price was given to Florence Prudhommeaux for a paper about investigations of retrieved ceramic implants. Members of the 1999 jury had been the four German surgeons Prof. Spranger, Prof. Springorum, Prof. Stock, and Prof. Zichner and me.

My hope is that this 4th proceedings provides a review and an update of ceramics in joint replacement for those who work in the field, both clinically and in research and in development. I would like to thank Prof. Sedel, the speakers and the staff of the publisher Georg Thieme Verlag for their help in the compilation of this work.

I would like to thank CeramTec's staff for all the support, my special thanks to Ms. I. Betsch for the excellent organisation of this symposium.

May 1999

Gerd Willmann, M.S. Ph.D.
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