Titanium implants may carry risk of corrosion, study finds

DTI

BIRMINGHAM, UK: Titanium medical implants used in dental prostheses and bone-anchored hearing aids may be less robust than commonly believed. Researchers from the UK have recently discovered evidence to suggest that in environments where there is no significant wear process, microscopic particles of titanium can be found in the surrounding tissue, which may have a negative impact on the devices.

For the study, Dr Owen Addison in the Biomaterials unit of the University of Birmingham’s School of Dentistry and his team obtained tissue from patients undergoing scheduled revision surgery associated with bone-anchored hearing aids (BAHA) at University Hospitals Birmingham NHS Foundation Trust. Soft tissue surrounding commercially pure titanium anchorage devices was examined using micro-focus synchrotron X-ray spectroscopy at the Diamond Light Source, Oxford, UK.

“The results showed, for the first time, a scattered and heterogeneous distribution of titanium in inflamed tissue taken from around failing skin-penetrating titanium implants,” the authors reported. “Wear processes and implant debris were unlikely to be major contributors to the problem. In the absence of obvious macroscopic wear or loading processes, we propose that the titanium in the tissue results from micro-motion and localised corrosion in surface crevices.”

Globally, more than 1,000 tonnes of titanium are implant ed into patients in the form of biomedical devices every year. Metallic prostheses, fixation and anchoring devices are used extensively for dental, orthopaedic, and craniofacial rehabilitation and their effects on the body are widely acknowledged by researchers to cause a negative impact. The results of this study have added to the list of concerns about the durability of such implant materials.

Coconut oil could reduce caries

Researchers from Ireland think that coconut oil may be of great interest to the oral health industry in the future because a new study has found that its natural anti-biotic properties strongly inhibit the growth of bacteria that cause oral infections. They suggest that the oil could be integrated into commercial dental consumer products to combat tooth decay.

In clinical tests, the researchers discovered that coconut oil that had been treated with enzymes similar to those found in the digestive tract was most effective in blocking the development of most strains of Streptococcus bacteria, including Streptococcus mutans. Additional tests revealed that the same enzyme-modified variant of coconut oil was also harmful to Candida albicans, the yeast that causes oral thrush, among others.

DTI partners with publisher in Japan

The largest publishing group in dentistry has joined forces with Dental Tribune Japan, a leading publisher in medicine and dentistry, in order to extend its broad range of media and educational services to Japan. The recently formed partnership includes the establishment of an online edition of Dental Tribune Japan in Japanese, targeted at more than 60,000 dentists, with weekly news in the local language sections of www.dental-tribune.jp, as well as regular e-newsletters and educational programmes in collaboration with the global e-learning platform Dental Tribune Study Club.

Dental Tribune Japan will also be the official representative of all publications and services of the Dental Tribune International portfolio in Japan. DTI president Torsten Oemus said. He added that Japanese dental professionals, including researchers, dentists, dental technicians, hygienists and dental industry representatives, are invited to submit abstracts, articles, product reviews or other editorial content.

Distinguished by innovation

Healthy teeth produce a radiant smile. We strive to achieve this goal on a daily basis. It begins with a search for innovative, ecologically and esthetically oriented dental filling procedures and the fabrication of individual, fixed or removable installations, so that you feel happy products at your disposal to help you regain a beautiful smile.

www.ivoclarvivadent.com
Ivoclar Vivadent AG
PO Box 360, 9494 Schaan, Liechtenstein
Tel.: +423 / 235 33 60
Fax: +423 / 235 35 35
www.dental-tribune.jp
The World’s Dental Newspaper · Asia Pacific Edition
Published in Hong Kong www.dental-tribune.asia
No. 9 Vol. 10