PROGRAMME AND ABSTRACTS

32nd annual meeting of the
European Bone and Joint Infection Society

EBJIS 2013

12-14 September 2013

Prague, Czech Republic

Venue:
U HÁJKŮ Congress Center

www.ebjis2013.org

European Bone & Joint Infection Society
EBJIS

EBJIS 2013

12-14 September 2013
Prague, Czech Republic

32nd annual meeting of
the European Bone and
Joint Infection Society



CARLO ROMANÒ

Name

Abstract no: 118

... has been granted the

EBJIS Award

for

Very promising research

at the 32nd Annual Meeting of the Bone and Joint Infection Society,
12-14 September 2013 in Prague, Czech Republic.

118

PREVENTION OF IMPLANT-RELATED INFECTIONS USING A RESORBABLE ANTIBACTERIAL HYDROGEL COATING: IN VITRO AND IN VIVO STUDY

Carlo Luca Romanò[1], Lorezo Drago[1], Maria Haensch[2], Lieve Van Mellaert [3], Jose Stuyck[3], Kostantinos Malizos[4], Milena Fini[5], Enzo Meani[6].

[1]*Istituto Ortopedico Irccs Galeazzi; (Milano, Italy);* [2]*Universitaets Klinikum; (Heidelberg, Germany);* [3]*Katholieke Universiteit; (Leuven, Belgium);* [4]*Institute For Research And Technology Thessaly – Cereteth; (Larissa, Greece);* [5]*Istituto Ortopedico Irccs Rizzoli; (Bologna, Italy);* [6]*Istituto Ortopedico G. Pini; (Milano, Italy).*

Aim: Implant-related infection are among the main reasons for failure of joint prosthesis with high associated social and economical costs. Here we report the results of a study performed under the European 7th Framework Programme*, concerning the efficacy in reducing bacterial colonization of an implant through a fully resorbable hydrogel antibacterial coating**. The patented tested hydrogel, a co-polimer comprising hyaluronic acid and poly-lactic acid, can be mixed just before its use with various antibacterial agents.

Methods: In vitro studies where conducted using DAC® coating on different biomaterials, including titanium, chrome-cobalt and polyethylene discs. In vivo studies where performed on 35 rabbits divided in 7 groups. Animals where implanted with an intramedullary titanium rod in their femur, with a known inoculum of methicillin-resistant Staph. aureus. 2% and 5% vancomycin-loaded coating** was used and compared to controls.

Results: In vitro studies showed the ability of the hydrogel to be loaded and to sustain release for up to 96 hours of the following antibacterial/antibiofilm compounds: vancomycin, ciprofloxacin, meropenem, gentamycin, amikacin, tobramycin, clindamycin, doxycyclin, linezolid, NAsalycilate, N-acetylcisteine. In vivo studies showed a bacterial load reduction ranging from 94% to 99.9% using vancomycin-loaded coating**, compared to controls.

Conclusions: Coating**, a fast-resorbable antibacterial carrier, showed the ability to be loaded with various antibacterial compounds and a highly significant reduction of bacterial colonization of implanted biomaterials in an animal model, opening a new pathway to local prevention and treatment of biofilm-/implant-related infections.

*(iDAC, collaborative research project # 277988)

**(DAC®, Novagenit, Italy)