



15th EFORT Congress: 4 – 6 June 2014, London

Infections in joint surgery: high risk for fracture patients

Postoperative infections after knee or hip joint replacements are among the most feared complications in orthopaedic surgery. At the EFORT Congress in London current research was presented that provides new insights in this field: Fracture patients are especially vulnerable to infection. New biomarkers should improve early diagnosis of risky infections.

London, 4 June 2014 – Surgical site infections (SSI) are among the most common hospital-acquired infections. An analysis by the European Centre for Disease Prevention and Control (ECDC) shows that they occur in 0.7 percent of knee replacement surgeries and one percent of hip replacements. SSI are among the most common causes for the rejection of the prostheses in hip replacement surgery, and even end up fatally in one of 200 cases, ECDC reports. A number of new studies addressing the problem were presented at the 15th EFORT Congress in London. The Congress is organised by the European Federation of National Associations of Orthopaedics and Traumatology (EFORT) as a combined programme in partnership with the British Orthopaedic Association (BOA). Patient safety is the main theme of this major medical meeting which brings together more than 7,000 participants.

Fracture patients face particular risk of infection

A large-scale Swedish cohort study shows that fracture patients who get an artificial hip have a significantly higher risk of infection than people who undergo surgery due to a degenerative hip disease. "Prosthetic joint infections were found most often in the group with secondary fracture prosthesis, namely in 2.8 percent of cases. That would include, for example, cases where internal fixation had failed. A somewhat lower incidence of 2.1 percent occurred in patients who had received a primary prosthesis due to a bone fracture. There were significantly fewer cases of infection, however, in people who underwent surgery due to degenerative disorder. Infection resulted in only 0.8 percent of the latter group," the study's main author Dr Piotr Kasina from Karolinska Institutet, Stockholm, told the EFORT Congress. His research group had examined 3,807 cases of hip replacement patients treated at the Stockholm South General Hospital between 1996 and 2005.

Infections are difficult to treat

The Swedish study also shows how difficult the treatment of postoperative infections can be. The infection could be cured in only 40 percent of the cases. And in 42 percent the structural infection was only brought under control after permanent resection arthroplasty. In this latter category, almost exclusively fracture patients were affected. In ten percent of the cases, a life-long antibiotic therapy was required. Eight percent of patients died during treatment. "Adequate prophylactic measures are necessary, especially against staphylococcus aureus and coagulase negative staphylococci, the most decisive factors in infection among fracture patients," said Dr Kasina.

New biomarkers for infection diagnosis

The mere diagnosis of periprosthetic joint infections, and not just the treatment, present challenges to orthopaedic surgeons. With the biomarkers procalcitonin (PCT) and interleukin 6 (IL-6) an Austrian research team appears to have identified a new

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parameter for the detection of periprosthetic joint infections in revision arthroplasty. Study author Prof Mathias Glehr from the Graz University Hospital summarised the results at the EFORT Congress: "We have compared the sensitivity and specificity of conventionally used biomarkers such as C- reactive protein (CRP) and leukocyte levels to that of PCT , IL-6 and interferon alpha (IFN-a). CRP has proven itself indeed as the best biomarker for diagnosing infections from periprosthetic revision surgery, but PCT and IL-6 were likewise shown to be helpful. They could be used as additional indicators when a diagnosis is not clearly conclusive." Data of 84 patients and 124 operations were analysed for the study.

Knee prosthesis: liver disease and blood transfusions as risk factors

A U.S. study screened allogeneic transfusions and liver disease as significant postoperative, in-hospital infection risk factors for those who received a knee replacement for the first time. Younger patients were at higher risk for infection than older people. Among the types of surgery, unilateral or staged bilateral interventions proved to be more susceptible to infection than same-day bilateral operations. Data from nearly 18,000 patients from the New York Hospital of Special Surgery were analysed for the study.

An infection was diagnosed during the hospital stay in 0.64 percent of the cases, four percent of which were deep infections. In late periprosthetic infection, the incidence was lower at 0.41 percent, but 82 percent of these infections were classified as deep. Renal or pulmonary diseases emerged as independent risk factors, as did wound dehiscence (splaying of adjacent edges of the wound or tissue structures of the wound) or a previous hospital infection. "Our work contributes to the identification of special risk groups. The aim must be to avoid such complications in particular in these patients through adequate measures," said study author Dr Lazaros Poultides.

About EFORT

The European Federation of National Associations of Orthopaedics and Traumatology (EFORT) is the umbrella organisation linking Europe's national orthopaedic societies. EFORT was founded in 1991 in the Italian Marentino. Today it has 45 national member societies from 42 member countries and eleven associate scientific members.

EFORT is a non-profit organisation. The participating societies aim at promoting the exchange of scientific knowledge and experience in the prevention and treatment of diseases and injuries of the musculoskeletal system. EFORT organises an annual congress, seminars, courses, forums and conferences within Europe. It also initiates and supports basic and clinical research.

Sources:

EFORT Abstract Kasina et al.: Prosthetic Joint Infection Following Hip Fracture And Degenerative Hip Disorder: A Cohort Study Of 3807 Consecutive Hip Arthroplasties With A Minimum Follow-Up Of 5 Years; EFORT Abstract Glehr et al.: Novel Biomarkers To Detect Infection In Revision Hip And Knee Arthroplasties; EFORT Abstract Poultides et al.: Infection Risk Assessment In Patients Undergoing Primary Total Knee Arthroplasty; European Centre for Disease Prevention and Control. Surveillance of surgical site infections in Europe 2010-2011. Stockholm: ECDC, 2013

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