

Clinical infection with fracture fixation – The Frutigen experienceD. Heim¹ A. Grosskreutz¹ & U. Schlegel¹ *Department of surgery, district hospital, CH-3714 Frutigen, Switzerland*²⁺ *AO Research Institute, AO Foundation, CH-7270 Davos-Platz, Switzerland***Introduction:**

Infections are serious complications after internal fixation of fractures. Their incidence differs in relation to fracture location, is different in open and closed fractures and might be different in relation to the institution dealing with fractures and its socio-economic environment. The infection rate in the last 12 years in a small, mountain district hospital treating mostly monofractures resulting from winter- and summersport accidents is analysed and commented upon. Antibiotic coverage was administered only in a selected group of patients.

Material and method:

Since 1995 all patients undergoing surgical fracture treatment were enlisted prospectively and called in routinely for a clinical and radiological control after 1 year. This so called AO-documentation and -control after 1 year has been pursued after 31st December 1999, date of discontinuation of routine AO documentation by the AO clinics.

Follow-up on the patients from abroad were either realised by a personal check-up by the respective surgeon or by a written report (including Xrays) from the medical doctor. Around 80% of the patients have been followed accordingly (1).

Antibiotic regimen: Patients with proximal femoral fractures, open fractures, delayed fixation and patients, that stayed in hospital longer than 6 hours before internal fixation and patients at risks (e.g. diabetes) were covered routinely with a single shot of a second generation cephalosporin. All other fractures were operated on without antibiotic coverage.

Results:

From January 1995 to December 2006 (12 years) 2467 osteosynthesis out of 13'922 interventions were carried out by 2 consultant surgeons. 241 external fixators (mainly distal radius fractures) have been excluded from the study. 21/ 2226 infections (0.94%) were recorded: 9 staph aureus, 4 staph epidermidis, 2 MRSA, 1 bacillus cereus, staph saprophyticus, enterococcus and clostridium perfringens each. 2 remained unknown. Infection rate in respect to fracture localisation: 7/299 (2.34%) proximal femur (3 DHS/ PFN, 4

endoprosthesis), 1/45 (2.2%) pilon tibial, 2/ 96 (2.1%) tibia plateau, 2/20 patella (10%), 4/ 223 (1.8%) tibia shaft, 1/71 (1.4%) femur shaft, 3/500 (0.6%) malleolar fractures, 1/254 (0.4%) hand fractures. Infections after internal fixation in other locations have not been recorded.

Discussion and conclusions:

The rate of infection after internal fixation of fractures in a rural hospital dealing mostly with simple monotrauma-patients was low and is comparable with literature (2,3). Patients at risk e.g. polytrauma patients resulting from traffic accidents were not treated at the institution due to the lack of an intensive care unit. Thus these results are not to be compared with results from big medical institution. Infection after proximal femur fractures were the most frequent, followed by proximal tibial fractures and tibial shaft fractures. The number of fixations of tibial pilon and patella fractures is (too) low for proper analysis. Infection rate after ankle and distal radius fractures were very low, respectively not recorded at all. Infections were mostly due to staph aureus, fortunately MRSA was not (yet) of importance. The antibiotic regimen applied may need reconsideration concerning tibial fractures.

References:

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- 3) Nast-Kolb D, Flohe S, Ruchholtz S. Akute Infektionen nach Osteosynthesel. *Op Journal* 2004; 20: 86-91