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Results of internal fixation in compound fracture (I, II and IIIA and IIIB) presenting after golden period 6 hours

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Background: In a developing country like ours patients with compound fracture often reach a tertiary care center after the described “golden period” window of internal fixation that has been standardized as 6 hours according to literature due to various factors. There are very few studies describing the result of internal fixation in delayed golden period “6-24” hours.

Materials & Methods: This is prospective study carried out from feb 2010 to Jan 2012. All cases of compound fractures Type I, II Type IIIA and IIIB were included. These were operated after the golden period but before 24 hours of injury. The study includes a total of 40 patients. There were 36 males and 4 females. Age ranged from 12 years to 58 years with the mean age of 28 years. Gustilo – Anderson classification was used to classify the fractures. Follow up period was of 36 months (mean 26.3 months). Exclusion criteria were patients with head injury, type IIIC compound fractures and those with associated spinal injury. The purpose of following study is to assess the infection rates, union, implant failure and need for additional procedures after internal fixation was done in compound fracture in “delayed golden period” that is 6-24 hours after adequate debridement of the wound and appropriate antibiotic coverage.

Results: Mechanism of injury was road traffic accident in 33 patients, fall from height in 7 patients. Out of 40 fractures 14 were type I 12 were type II, 14 were type III compound fractures. 17 patients presented within 6-12 hours, 23 presented from 12-24 hours. The patients were taken for debridement and fixation after 16.7 HOURS (MEAN) hours of injury. Average infection rate was 9.2% (Type 1 - 7.14% (1/14), Type 2 - 8.33% (1/12), Type 3 - 14.2% (2/14)) which was comparable or less than in literature. Non union was seen in 5 patients. 3 were managed with bone grafting while 2 were managed with exchange nail. There was no incidence of implant failure. Functional evaluation was done according to the Kattanjian criteria. Good to excellent results were seen in 70 percent of patients.

Conclusion: There are definitive advantages of internal fixation in open fracture provided infection can be prevented by careful and radical debridement along with judicious use of antibiotics.

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