The aim of this study was to evaluate a standardized treatment protocol regarding the rate of secondary bone union, complications, and functional outcome. This study was started as a prospective study in a single Level I Trauma Centre between 2003 and 2012. The study group consisted of 188 patients with the diagnosis of an aseptic tibial shaft nonunion. Exchange nailing was performed following a standardized surgical protocol. Long-term follow-up was analyzed for rate of bone healing and functional outcome. Osseous healing was achieved in 182 out of 188 patients (97%). In 165 out of 188 patients (88%), bone healing was observed timely and uneventfully after a single exchange nailing procedure. An open approach was necessary in 32 patients (17%). Twenty-three patients (12%) required additional therapy such as extracorporeal shock wave therapy. Post-operative complications were observed in seven patients (4%). Almost all patients demonstrated osseous healing within 12 months, with the majority of osseous healing occurring within six months. A relevant shortening of the fractured tibia was observed in 20 out of 188 patients (11%). After a median follow-up of 23 months (range 12-45 months), outcome was evaluated using the assessment system of Friedman/Wyman. In summary, 154 out of 188 patients (82%) had a good functional outcome.
long-term result. Reamed intramedullary exchange nailing including correction of axis alignment is a safe and effective treatment of aseptic tibial shaft nonunion with a high rate of bone healing and a good radiological and functional long-term outcome.