

**To Monitor, or Not to Monitor: That is the Question?**

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**Purpose:** The link between fractures of the tibial diaphysis (TD) (AO/OTA 42.A-C) and acute compartment syndrome (ACS) is well established. However the diagnosis of ACS can be challenging and therefore some advocate use of continuous compartment pressure monitoring (CCPM) to aid the diagnosis. The aim of this study was to evaluate whether use of CCPM significantly increased the rate of decompression fasciotomies in patients who had sustained a TD fracture.

**Methods:** We retrospectively reviewed the management of all patients who were admitted with a fracture of the TD across 3 centers during a 2 year period. Two hospitals routinely managed these patients with clinical observation alone whereas one center chose to supplement clinical examination with CCPM. Therefore, the study cohort was logically divided depending on their place of admission into monitored (MG) and non-monitored (NMG) groups. Information regarding patient demographics, surgical management, subsequent complications, methods of compartment monitoring, and follow-up were all included in the data collection. Statistical significance was assumed when  $P < 0.05$ .

**Results:** A total of 287 patients were included in this study (116 NMG vs 171 MG). There were no significant differences observed in the patient demographics between the groups. The majority of patients had AO/OTA type 42.A1-3 fractures, that were treated with an intramedullary (IM) nail (89% MG, 57% NMG;  $P = 0.001$ ). The average time from admission to surgery was 28 hours for the MG compared to 24 hours for the NMG; this difference was not significant ( $P = 0.92$ ). 21 patients were treated for a suspected ACS ( $n = 13$  MG,  $n = 8$  NMG) and were treated with acute decompression fasciotomies. Of these patients, 100% of the MG were treated with IM nailing, compared to 63% of NMG ( $P = 0.058$ ). Of these patients some developed ACS pre-fracture fixation; as a result they had fasciotomies combined with surgical fracture management. These patients received their treatment on average 16 hours (MG) and 18 hours (NMG) from admission. Of the patients who developed ACS postoperatively, these patients received their fasciotomies on average 19.5 hours (MG) and 21.25 hours (NMG) from admission.

**Conclusion:** This study illustrates that CCPM does not increase the rate of fasciotomies in patients who have suffered a TD fracture when compared with standard clinical assessment. Further prospective research is required to clarify the diagnostic utility of CCPM and to assess the subsequent impact on clinical and functional outcomes in patients who develop ACS.