The Myths of Foot Compartment Syndrome

Lisa K. Cannada MD, Heidi Israel PhD, J. Tracy Watson MD

Saint Louis University Department of Orthopaedic Surgery; St. Louis, MO, USA

Purpose: Foot compartment syndrome (CS) represents an enigma in orthopaedic surgery. There are clinicians who believe the entity does not exist. Many believe the sequelae of missed foot compartment syndromes are easier to treat than the acute syndrome itself. The purpose of this survey was to evaluate the current knowledge base of this diagnosis and describe current treatment standards.

Methods: The literature on foot compartment syndrome was reviewed and a 25 question survey was developed using 18 references. An additional 9 questions were added to the survey regarding working knowledge, treatment practices and clinical experiences regarding this diagnosis. The survey was validated by administering 3 weeks apart to 10 orthopaedic surgeons. The survey was placed on the OTA website and the link sent to members of the American Orthopaedic Foot and Ankle Society. Statistical evaluation was completed using Chi-square analysis with a p value set at $p < 0.05$.

Results: Between November 2010 and January 2011, 170 respondents completed the survey. There were 9 residents or fellows (5.4%); 34 (20%) of respondents were between 1-4 years in practice; 28 (17%) were between 5-9 years in practice and 97 (58%) were in practice for 10 years or more and 2 skipped this question. The resident/fellow responses were eliminated in data analysis. 87% of the respondents indicated they had previously treated a foot compartment syndrome. 53% of respondents believed the diagnosis of foot CS is made by both clinical and compartmental pressure measurements. 68% of trauma surgeons and 39% of foot and ankle surgeons believed the sequelae of CS are easier to treat than the CS itself ($p < 0.05$). For those surgeons who treated a foot CS, 64% did so by three incisions: plantarmedial and 2 dorsal incisions. Respondents missed 5 (20%) of questions regarding basic knowledge of foot CS. Errors occurred regarding foot CS diagnosis, relevant anatomy and CS etiology. There was no statistical difference between incorrect answers and level of experience or trauma versus foot and ankle training.

Conclusions: Foot compartment syndrome is challenging problem for most orthopaedic surgeons. This was demonstrated by the fact that practicing orthopaedic surgeons missed 20% of the questions regarding this diagnosis. There are numerous confounding variables which may affect the diagnosis; not the least of which is that CS occurs often in concert with high energy complex fractures. The issue of the “treatment is worse than the disease” is yet to be settled. Questions abound regarding treatment of acute foot compartment syndrome which may contribute to the morbidity. This survey indicated the majority of respondents had treated a foot compartment syndrome and two thirds did so with three incisions. The literature on the number of surgical incisions is not conclusive of best practice techniques. There are questions, no matter how many years one has been in practice, regarding the diagnosis of foot compartment syndrome. Continuing review of the literature and further studies on this diagnosis may help improve the knowledge of foot compartment syndrome.