

# Tourniquet Cuff Pressure - The Gulf Between Science and Practice

Last Updated Sunday, 31 December 2006

Journal of Trauma-Injury Infection & Critical Care. 61(6):1415-1418, December 2006.

Tejwani, Nirmal C. MD; Immerman, Igor MD; Achan, Pramod FRCS; Egol, Kenneth A. MD; McLaurin, Toni MD

## Abstract:

Tourniquet use is effective in producing a bloodless field. It is recommended that the least effective pressures be used to minimize tissue microstructure and biochemical damage from tourniquet application. When applied at the thigh, the minimum effective tourniquet pressure is 90 to 100 mm Hg above systolic BP, and in a normotensive, nonobese patient, pressure of 250 mm Hg is sufficient. Similarly, an arm tourniquet pressure of 200 mm Hg is recommended.

The purpose of this survey was to assess the tourniquet pressures used by orthopaedic surgeons, both academic and community based, and their familiarity with associated literature.

## Materials: A

Website-based survey was distributed to a random sample of academic and community-based surgeons. Respondents were asked the upper and lower-extremity tourniquet pressures they routinely use. They were asked if they were able to cite or were aware of literature to support their answer. They were also asked to specify their practice setting and years in practice.

Results were statistically analyzed utilizing Fisher's exact test and Mann-Whitney test.

## Results:

A total of 199 survey responses were collected. Out of these, 151 (76%) were complete for the lower extremity, and 141 (71%) were complete for upper extremity. The average years in practice were 12.6 years (range, 1-30).

The median LE pressure was 300 mm (range, 150-400), and the median UE pressure was 250 mm (range, 150-300). Less than 20% of respondents routinely used pressures of 250 mm or less for the lower extremity. For upper extremity, only 11.3% used pressures at or below 200 mm.

Surgeons in academic practice were more likely to use lower tourniquet pressures, and less likely to choose "don't know" as the option for literature support, but the difference was not statistically significant.

Although 60% of respondents thought that they were aware of literature supporting their answers, only 25% of these for the lower extremity and 11% for the upper used the correct pressures.

Conclusion: This survey demonstrates the existing gulf between tourniquet use and supporting literature.

Tourniquet use is not benign and the correct pressure usage allows the least morbidity. We hope this survey will raise awareness of the correct tourniquet pressures and change practice patterns based on "that's how we have always done it".

Are you using a higher tourniquet pressure than recommended by the current evidence?