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14. ABSTRACT

It is estimated that there have been several hundred tibia fractures that have occurred in the global war on terror. Little is known about the long-term consequences of these injuries and their treatment.

Objective: Our main objective is to determine significant predictors of poor outcome following open tibia fractures so that suitable modifications can be made to treatment and rehabilitative therapy. Of particular interest is an evaluation of differences in outcomes for various algorithms for the treatment of open tibia fractures. **Specific Aims:** We aim to: (1) describe the long-term consequences of open tibia fractures; (2) identify clinical and patient characteristics that explain variations in outcome; and (3) make recommendations for treatment adjustments. **Study Design:** Patients will be identified retrospectively. The retrospective cohort (numbering approximately 430) will consist of all soldiers who meet the inclusion criteria and were injured as of September 30, 2006 and cared for at one of the participating facilities. Principal sources of data will include: (1) clinical data abstracted from the medical record; (2) baseline interviews; and (3) a follow-up interview one-year following the baseline interview. **Relevance:** This long term follow-up will provide a unique opportunity to (1) examine the benefits of different treatment modalities for open tibia fractures in a military population; (2) identify ongoing needs for additional services; (3) provide the basis for targeted interventions; and (4) assist in assuring that these and future soldiers are provided with every opportunity for a good long-term outcome.

15. SUBJECT TERMS

Open tibia fractures, outcomes research

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INTRODUCTION: In 2006, the Johns Hopkins University Bloomberg School of Public Health received a grant from the Department of Defense to conduct a study to examine long-term orthopaedic outcomes in soldiers, sailors, airmen, and marines injured during the Global War on Terrorism (GWOT). The *Military Extremity Trauma and Amputation/Limb Salvage (METALS) Study* is a multi-center cohort study designed to establish procedures for a uniform, long term follow-up to better define the clinical, functional and quality of life outcomes following major orthopedic trauma. The study is a collaborative effort involving Walter Reed Army Medical Center (WRAMC), Brooke Army Medical Center (BAMC), National Naval Medical Center in Bethesda (NNMC), and the Naval Medical Center San Diego (NMCS), and the Johns Hopkins University Bloomberg School of Public Health. The current study will enhance the METALS study by incorporating *all* open tibia fractures. It is estimated that there have been several hundred tibia fractures that have occurred in the global war on terror and many different techniques have been employed in treatment of these injuries, with varying degrees of success having been achieved. The objective of this study is to examine the treatment of tibia fractures includes casting, functional bracing, uniplanar external fixation, multiplanar external fixation and intramedullary fixation. No single mode of treatment has been identified as being better than another. This study will help elucidate these treatment differences and document the long term outcomes following open tibia fractures.

BODY:

Critical Event	Completion Date
Study Infrastructure	
• Recruit and train medical record abstractor	Completed
Define Patient Population	
• Refine inclusion and exclusion criteria and develop protocol for identifying patients	Completed
Data Collection	
• Screen patient medical records for eligibility	Completed
• Revise interview and patient contact materials	Completed
• Develop contact database for survey research Firm (SSS)	Completed
• Send letters to potential participants	Completed
• Conduct patient interviews	Completed
• Abstract clinical data	Completed
Analysis of Data and Writing of Reports	Completed
• Begin to develop analysis files	Completed
• Analysis	Completed
• Preparation of manuscripts and final report	Completed

KEY RESEARCH ACCOMPLISHMENTS: Based on an early projections, we estimated that approximately 172 of the patients eligible for the parent METALS study will have sustained an open tibia fracture. By broadening the criteria for inclusion to include all open tibia fractures, we estimated we would add an additional 258 patients. A summary of key accomplishments is as follows:

- Identified and enrolled a total of 273 service men and women with open tibia fractures 125 (WRAMC); 79 (BAMC); 66 (NNMC) and 3 (NMCSD). The enrolled service members are on average 30 years old and 37 months out from their injury at the time of the interview.
- Developed an analysis file linking the data from the chart abstraction with the interview data.
- Established operational variables for the analysis.

REPORTABLE OUTCOMES: None

CONCLUSION: Very little has been determined about the long term consequences of open tibia fractures and their treatment in a military setting. Of particular interest and concern is the status of service members once they are discharged from care at one of the participating facilities and either return home or return to active duty. The results of this study had important implications for acute care treatment of these fractures. The study was also used to identify ongoing (post-discharge) needs for additional services and provide the basis for targeting interventions and conducting focused research on carefully selected aspects of long-term recovery. Over the long term, this research will assist in assuring that these service members are provided with every opportunity for a good long-term outcome.

REFERENCES: None

APPENDICES: None

SUPPORTING DATA: None