

Observation of Heel Ulcer After Orthopaedic Surgery at a Tertiary Care Centre

Suresh C

Associate Professor, Department of Orthopaedics,
Meenakshi Medical College Hospital and Research Institute,
Enathur, Kanchipuram, Tamil Nadu, India.

Article History

Received: 11 Aug 2015

Revised: 08 Sept 2015

Accepted: 25 Sept 2015

*Correspondence to:

Dr. Suresh C,
Associate Professor,
Department of
Orthopaedics,
Meenakshi Medical
College Hospital and
Research Institute,
Enathur, Kanchipuram,
Tamil Nadu, India.

ABSTRACT

Background: Patients who had undergone orthopedic surgery receive care besides this heel pressure ulcer incidence in the orthopedic population has reported. Thus, the purpose of this prospective observational study was to evaluate the incidence of heel pressure ulcer in orthopedic patients.

Materials and Methods: In this prospective observational study; 56 patients of age group 35-60 year were included. Patients who underwent lower extremity orthopedic surgery due to an elective or emergency procedure were included in this study. Participants were included after written consent. Patients who already had a heel ulcer, or if it was impossible to examine their heels due to extreme pain or because a cast or other device covered the heels were excluded from the study. Statistical analysis was done by using SPSS, version 22.

Results: In this study total number of participants was 56; in which 35 were male whereas 21 were females. Stage I was more common in both males and females.

Conclusion: The patients with a prolonged duration of surgery are at a greater risk of developing a pressure ulcer. Therefore, programs for the prevention of heel ulcer before, during, and after surgery have to be implemented so that the pain and cost of treatment can be lessen.

KEYWORDS: Orthopedic Surgery, Heel Pressure Ulcer.

INTRODUCTION

Pressure ulcers are a common problem for patients, causing significant pain and additional costs. Many studies have investigated the incidence and the prevalence of pressure ulcers. The incidence of pressure ulcers is 0.4% to 38%; within long-term care, 2.2% to 23.9%; and in home care, 0% to 17%.^{1,2} Primary risk factors for pressure ulcer development in the intraoperative patient are immobility and the inability to perceive pain or discomfort from unrelieved pressure, as well as friction and shearing forces.³ Additional intrinsic, extrinsic, and OR risk factors provide challenges for the perioperative team.⁴ Intrinsic risk factors related to the patient's tolerance to sustain a pressure insult include alteration in nutrition as evidenced by albumin levels ≤ 3 g/dL, older age, decreased mental status, immobility, infection, incontinence, impaired sensory perceptions, and comorbidities (eg, diabetes, peripheral vascular

disease, pulmonary disease, weight, perfusion deficits related to hemodynamic status).⁴ Extrinsic risk factors are those variables that increase tissue susceptibility to sustain external pressure; they include temperature, friction and shearing forces, and moisture.^{4,5} Over the past decade, methods of prevention and treatment of pressure ulcer have changed as many new methods are emerging. The objective of this prospective observational study was to evaluate the incidence of pressure ulcers after the orthopedic surgery.

MATERIALS AND METHODS

In this prospective observational study; 56 patients of age group 35-60 year were included. Before beginning of the study ethical approval was obtained. Patients who underwent lower extremity orthopedic surgery due to an elective or emergency procedure were included in this

study. Participants were included after written consent. Patients who already had a heel ulcer, or if it was impossible were excluded from the study. Complete history was taken and each individual underwent a bedside assessment, including direct examination of both heels. Statistical analysis was done by using SPSS, version 22 (SPSS, Inc., Chicago, IL).

RESULTS

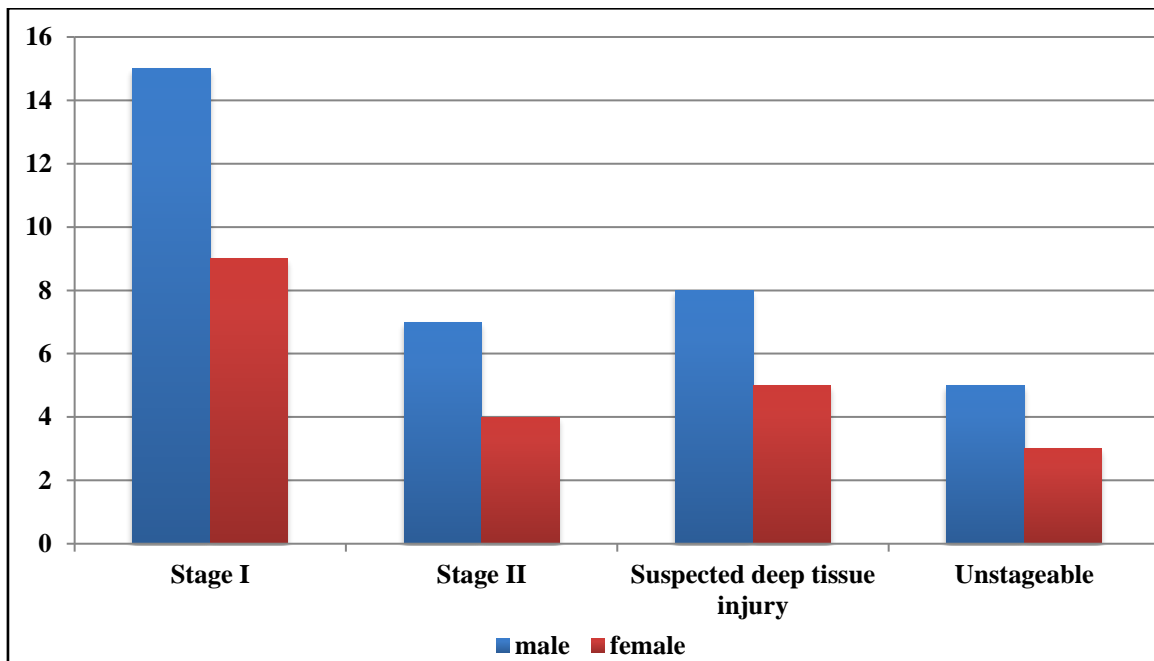
In this study total number of participants was 56; in which 35 were male whereas 21 were females. Stage I was more common in both males and females. On the severity basis total 24 candidates were in stage 1 out of them 15 male and 9 female, 11 candidates were in stage II out of them 7 male and 4 female, 13 candidates were in suspected deep tissue injury out of them 8 male and 5 female and 8 candidates were in Unstageable out of them 5 male and 3 female. (Table 2, Graph 1)

Table 1: Distribution of gender of participants having heel ulcer after orthopaedic surgery

Gender	N(%)	p-value
Male	35(62.5%)	<0.05
Female	21(37.5%)	
Total	56(100%)	

Table 2: Heel pressure ulcer severity on the basis of gender

Heel pressure ulcer	Gender	
	Male	Female
Stage I	15	9
Stage II	7	4
Suspected deep tissue injury	8	5
Unstageable	5	3



Graph 1: Heel pressure ulcer severity on the basis of gender

DISCUSSION

The National Pressure Ulcer Advisory Panel recommendations specifically include additional considerations for pressure ulcer prevention in the OR, including that the heels be completely elevated off of the OR bed to redistribute weight to the calf and prevent development of heel pressure ulcers. For prolonged surgical procedures, such as those in this study, diligent monitoring of patient positioning with regard to heel and sacral pressure ulcer development is indicated. Additional research also may be warranted to investigate whether prolonged heel elevation during these surgical procedures is consistently linked to sacral pressure ulcer risk.⁶⁻⁹ In our study total number of participants was 56 in which 35 were male whereas 21 were females. Stage I

was more common in both males and females. Campbell KE et al conducted a study and assessed 41% of HPUs were either suspected deep tissue injury (sDTI) or unstageable. Both of the Stage I and two of the five Stage II ulcers were resolved at the time of follow-up; three of the five sDTI or unstageable ulcers were unresolved. HPUs occurred in 17% of people undergoing orthopedic procedures. All ulcers occurred in acute care and severe ulcers persisted while patients received rehabilitation and community care.¹⁰ Despite the larger number of men who had developed this ulcer, the prevalence of a pressure ulcer was deemed to be higher in men than in women, which is consistent with the results of some studies^{8,9} and inconsistent with

the results of others, which reported the prevalence to be higher in men. In the present study, the prevalence of a stage 1 ulcer was higher than the prevalence of the other stages of an ulcer.

CONCLUSION

The patients with a prolonged duration of surgery are at a greater risk of developing a pressure ulcer. Therefore, programs for the prevention of heel ulcer before, during, and after surgery have to be implemented so that the pain and cost of treatment can be lessened.

REFERENCES

1. Lyder CH. Pressure ulcer prevention and management. *JAMA*. 2003;289(2):223-26.
2. Reddy M, Gill SS, Rochon PA. Preventing pressure ulcers: a systematic review. *JAMA*. 2006;296(8):974-84.
3. Schouchoff B. Pressure ulcer development in the operating room. *Crit Care Nurs Q*. 2002;25(1):76-82.
4. Lyder C, Ayello E. Pressure ulcers: a patient safety issue. In: Hughes RG, editor. *Patient Safety and Quality: An Evidence-based Handbook for Nurses*. Rockville, MD: Agency for Healthcare Research and Quality; 2008. [Accessed August 4, 2011]. 267-99.
5. Armstrong D, Bortz P. An integrative review of pressure relief in surgical patients. *AORN J*. 2001;73(3):645-57.
6. European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. *Treatment of Pressure Ulcers: Quick Reference Guide*. Washington, DC: National Pressure Ulcer Advisory Panel; 2009.
7. Primiano M, Friend M, McClure C, Nardi S, Fix L, Schafer M, et al. Pressure ulcer prevalence and risk factors during prolonged surgical procedures. *AORN J*. 2011;94(6):555-66.
8. Tschannen D, Bates O, Talsma A, Guo Y. Patient-specific and surgical characteristics in the development of pressure ulcers. *Am J Crit Care*. 2012;21(2):116-25
9. Shaw LF, Chang PC, Lee JF, Kung HY, Tung TH. Incidence and predicted risk factors of pressure ulcers in surgical patients: experience at a medical center in Taipei, Taiwan. *Biomed Res Int*. 2014;2014:416896.
10. Campbell KE, Woodbury G, Labate T, LeMesurier A, Houghton PE. Heel ulcer incidence following orthopedic surgery: a prospective, observational study. *Ostomy/wound management*. 2010 Aug;56(8):32-9.

Copyright: © the author(s) and publisher IJMRP. This is an open access article distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite the article: Suresh C. Observation of Heel Ulcer After Orthopaedic Surgery at a Tertiary Care Centre. *Int J Med Res Prof*. 2015, 1(2); 136-38.