

Observational study

Females report higher postoperative pain scores than males after ankle surgery



Anette Storesund^{a,*}, Yngvar Krukhaug^{b,c}, Marit Vassbotten Olsen^a, Lars Jørgen Rygh^a, Roy M. Nilsen^d, Tone M. Norekvål^{d,e,f}

^a Department of Anaesthesiology and Intensive Care, Haukeland University Hospital, Bergen, Norway

^b Department of Clinical Medicine, University of Bergen, Bergen, Norway

^c Department of Orthopaedic Surgery, Haukeland University Hospital, Bergen, Norway

^d Centre for Clinical Research, Haukeland University Hospital, Bergen, Norway

^e Department of Heart Disease, Haukeland University Hospital, Bergen, Norway

^f Department of Clinical Science, University of Bergen, Bergen, Norway

HIGHLIGHTS

- Severe postoperative pain is reported to be a predictor of persistent pain.
- We therefore studied pain after ankle fracture operations in the postanesthetic care unit (PACU).
- We focused on possible predictors of at least moderate pain, i.e. ≥ 4 on a 0–10 Verbal Numeric Rating Scale (vNRS).
- Being female was a statistically significant predictor of pain $\geq 4/10$ in the PACU after ankle operations.
- These were not predictors: age, weight, smoking, time to operation, types of fracture, anaesthesia, operation, or tourniquet inflation.

GRAPHICAL ABSTRACT



ARTICLE INFO

Article history:

Received 1 October 2015

Received in revised form 29 April 2016

Accepted 1 May 2016

Available online 27 May 2016

Keywords:

Ankle fracture
Postoperative pain
Ankle surgery
Predictors of pain
Men and women

ABSTRACT

Objectives: The majority of patients experience moderate-to-intense pain following ankle surgery. Early, adequate treatment of postoperative pain is desirable for optimal pain relief, which in turn may facilitate optimal pulmonary function, normal respiration pattern, rehabilitation and prevention of a chronic pain condition. In this retrospective study, we aimed to identify possible predictors of moderate-to-intense postoperative pain while in the Post Anaesthesia Care Unit (PACU) in patients operated for ankle fractures. **Materials and methods:** Social demographics and clinical characteristics from admission throughout the stay in the PACU were collected from the hospital patient record system in retrospect. Pain was assessed using a Visual Analogue Scale (VAS) or a verbal Numeric Rating Scale (vNRS). A VAS/vNRS score 4–6 was classified as moderate and 7–10 as intense pain. Other factors which were investigated were time from ankle fracture to surgery, anaesthetic procedure, pre-, per- and postoperative medical treatment, radiological classification, complexity of fracture, operative technique, and time using tourniquet procedure.

DOI of refers to article: <http://dx.doi.org/10.1016/j.sjpain.2016.05.034>.

Abbreviations: PACU, post anaesthesia care unit; ASA, American Society of Anaesthesiologists; VAS, Visual Analogue Scale; vNRS, verbal Numeric Rating Scale.

* Corresponding author at: Department of Anaesthesiology and Intensive Care, Haukeland University Hospital, 5021 Bergen, Norway. Tel.: +47 997 35 274; fax: +47 55974971.

E-mail address: anette.storesund@helse-bergen.no (A. Storesund).

<http://dx.doi.org/10.1016/j.sjpain.2016.05.001>

1877-8860/© 2016 The Author(s). Published by Elsevier B.V. on behalf of Scandinavian Association for the Study of Pain. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Results: Data from 336 patients who underwent surgery to repair an ankle fracture between January 2009 and December 2010 were analysed. None of the following variables had a statistically significant effect on pain; age, weight, smoking, timeframe from fracture to operation, type of anaesthesia, opioids given peroperatively, complexity of the fracture, operation technique or tourniquet inflation procedure. Female sex predicted moderate-to-intense postoperative pain in the PACU with odds ratio 2.31 (95% confidence interval 1.39–3.86), $P=0.001$. As far as we know, this is the first study to show a sex difference in reporting pain in the first hours after surgery for ankle fracture.

Conclusion: Female patients operated for ankle fracture report higher pain-intensity-score than male patients while in the PACU.

Implications: Our findings suggest that treatment strategies to prevent high peaks of pain should particularly target women operated for an ankle fracture.

© 2016 The Author(s). Published by Elsevier B.V. on behalf of Scandinavian Association for the Study of Pain. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

In Norway, 4500 ankle fractures are reported per year, which translates to an incidence of roughly 100 ankle fractures for every 100,000 people [1]. Ankle fractures are painful. Generally, inadequate postoperative pain treatment may affect pulmonary function negatively, developing into atelectasis or pulmonary infections and prolong recovery [2]. Intense, uncontrolled postoperative pain may also lead to persistent pain [3,4]. Being female, low educational level, report of frequent illness or chronic illness was found to be predictors of chronic pain in a Norwegian cohort [5]. A systematic review involving 23,037 patients reported that preoperative pain, anxiety, younger age, and surgery type (orthopaedic, thoracic, and abdominal surgery) were important predictors for intensity of postoperative pain [6]. None of the included studies examined ankle fractures in particular. Sex and pain were the foci of a literature review on clinical and postoperative pain in experimental studies of ankle fractures [7]. There was strong evidence to support that females experienced more pain than males in clinical pain situations, as well as in postoperative and procedural pain situations. The distinction between the sexes was more evident around and after puberty. The review examined a great variety of studies, some of which also included orthopaedic patients. They concluded that men and women perceive pain differently. However, none of the studies included ankle-operated patients. With a literature search of relevant publications in MEDLINE (Ovid), Cochrane Library, Web of Science, and Excerpta Medica Database (EMBASE) only four studies exist on postoperative pain in patients with ankle fractures short time after surgery. Two prospective and one retrospective study measured the effect of pneumatic tourniquets on postoperative pain. The first study with a small number of patients ($n=32$) [8], the second included 138 patients [9]. The third, involved 603 patients and investigated tourniquet procedure and postoperative opioid consumption in addition to peak pain score and time in the post anaesthesia care unit (PACU) [10]. The fourth, retrospectively examined the association of gender and body mass index (BMI) with postoperative pain scores [11]. To complement these analyses, the current study aimed to examine potential predictors of moderate-to-intense postoperative pain following ankle operations.

2. Methods

2.1. Design and setting

The current study was conducted retrospectively, utilising an observational, cross-sectional design to identify factors that affect ankle-operated patients' perceived peak pain in the PACU. The data were collected between January 2009 and December 2010 in a

tertiary university hospital on the west coast of Norway. The project was classified as quality improvement by the Institutional Review Board (Ref: 2010/2596). Hence, following Norwegian standard, the ethics procedures was approved by the Data protection Officer (2011/69) and **patient information** was not needed.

2.2. Patients

Patients included were ≥ 18 years old; had an isolated ankle fracture; and had an American Society of Anaesthesiologists (ASA) physical status classification score of 1, 2, or 3 [12]. Hospital operating scheduling software (Orbit 4, Evry) identified 412 patients eligible for inclusion. Exclusion criteria were reoperation, tibial pilon fracture, crus fracture, or whether concomitant, non-ankle injuries also needed treatment. After performing accurate radiological classification we excluded 76 patients (Fig. 1).

2.3. Measurements

2.3.1. Pain

Self-reported pain was recorded while the patient was in the PACU. We used a Visual Analogue Scale (VAS) or verbal Numeric

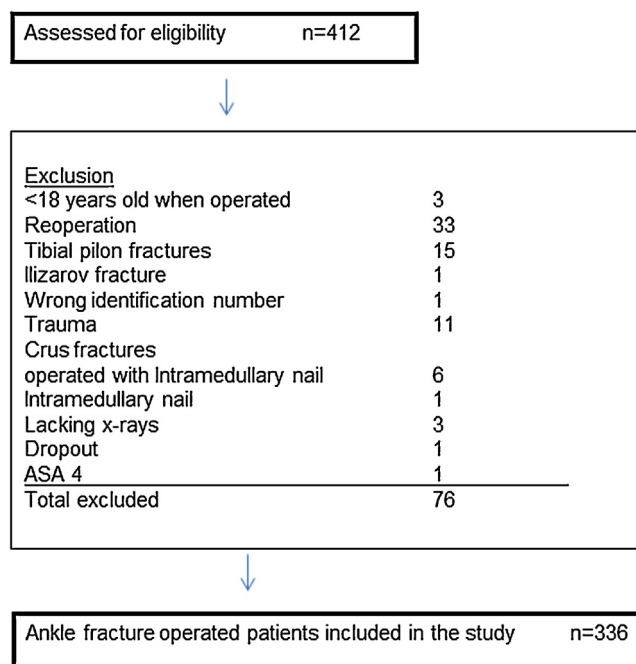


Fig. 1. Flowchart.

Download English Version:

<https://daneshyari.com/en/article/8623415>

Download Persian Version:

<https://daneshyari.com/article/8623415>

[Daneshyari.com](https://daneshyari.com)