



**Karolinska  
Institutet**

**Institutionen för molekylär medicin och kirurgi**

## **Pressure ulcer - Role of the nurse to improve patient safety**

prevalence, risk factors, classification and documentation in patients  
undergoing hip surgery

**AKADEMISK AVHANDLING**

som för avläggande av medicine doktorsexamen vid Karolinska  
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av

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# ABSTRACT

Pressure ulcer is a common complication in hip fracture surgery and convalescence. Earlier prevalence studies have demonstrated a lower prevalence in Southern Europe than in Northern Europe. In patients with hip fractures, specific risk factors for developing pressure ulcers, apart from those included in standardised risk assessment are not fully understood. Correct classification of Category I pressure ulcers is a prerequisite for planning preventive measures. It is also mandatory for the reliability of prevalence studies. Until now subjective tests such as finger-press test and visual assessment have been utilised in clinical practice. An objective method has hitherto been lacking. Planning and delivering good nursing care to patients who are at risk of, or already have, manifest pressure ulcers should be built on proper documentation. Degree of documentation of pressure ulcer prevalence and risk factors in patients with hip fractures versus elective hip replacement surgery has hitherto not been investigated. Scrutiny of medical records for these diagnoses and identification of potential differences should therefore be of interest.

*Aim:*

- To investigate prevalence and incidence of pressure ulcers upon arrival and at discharge from hospital, and to identify potential intrinsic and extrinsic risk factors for the development of pressure ulcers in patients admitted for hip fracture surgery.

To establish the inter-rater reliability between blanching and non-blanching erythema, assessed by two independent assessors. The secondary purpose was to investigate potential correlations between risk factors and pressure ulcers.

- To explore if a non-invasive objective method could differentiate between blanching/non-blanching erythema in the sacral area of patients undergoing hip fracture surgery.

- To investigate the degree of documentation regarding risk assessment, preventive measures taken, prevalence and severity of pressure ulcers, in patients undergoing surgery for hip fractures or elective hip replacements at admission and during hospital care at an orthopaedic unit.

*Results:*

The prevalence of pressure ulcers in Southern Europe was lower compared to Northern Europe. Specific risk factors such as dehydration ( $p=.005$ ), moist skin ( $p=.004$ ), pulmonary disease ( $p=.006$ ) and diabetes ( $p=.005$ ) were identified. The finger-press test and visual assessment of Category I pressure ulcers were both unreliable methods with low inter-rater reliability. The proportion of patients with persistent discoloration differed significantly between the assessors from Day 1 to Day 5 ( $p = .013$ ). Reflectance spectrophotometer used was proven to deliver high precision regarding classification of non-blanchable erythema (Category I pressure ulcers). Documentation of pressure ulcers, risk assessment, body mass index and prevention at admittance was unsatisfactory in patients undergoing hip surgery.

**Keywords:** Hip fracture, pressure ulcers, classification, reflectance spectrophotometer, nursing documentation

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