Pressure ulcer incidence and risk factors for patients undergoing surgery that lasts more than three hours.

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Introduction
The prevalence of pressure ulcers (category I-IV) in the overall population in Belgian hospitals is 12.1% [1]. Prevalence rates in specific patient populations are significantly higher. For example, the incidence of pressure ulcers in surgical patients varies between 4.7% and 66% [2].

Undergoing surgery seems to be a risk factor to develop pressure ulcers even in patients who are not at risk otherwise [2]. We assume that pressure ulcers occur during the peroperative period whilst patients are during surgery not able to reposition or feel pain caused by prolonged pressure.

The purpose of this paper is to determine the pressure ulcer incidence (category I-IV and II-IV) and risk factors for patients undergoing surgery that lasts more than three hours.

Methods
The research design was a single center follow-up study at the University Hospitals of Leuven, Belgium. Pré-, per- and postoperative data were collected using the electroning health record. The skin of the patients was observed before the surgery, within three hours after the surgery and 48 hours after surgery. Data were collected by three researchers who were trained in pressure ulcer classification.

Statistical analysis was performed with SPSS. Each variable was examined individually using univariate logistic regression analysis to identify those risk factors that were associated with the occurrence of pressure ulcers category II-IV. Variables with a p-value of > 0.2 were then considered for inclusion into a stepwise backward elimination multivariate logistic regression analysis.

Results
Two days after surgery the incidence of pressure ulcers category I-IV was 6.7% and the incidence of pressure ulcers category II-IV was 2.2%. In total 5 patients, of the 225 observed patients, developed a pressure ulcer category II-IV.

The following variables were included in the multivariate logistic regression analysis: ‘anemia’, ‘diabetes’, ‘total length of surgery’, ‘total length of hypotensive period’ (diastolic blood pressure < 60 mmHg), ‘sedation score’, ‘repositioning postoperative’. The only statistically significant variable was total length of hypotensive period (p = 0.018).

Discussion
This study suggests that there is no relationship between the length of surgery and the occurrence of pressure ulcers. This is in contradiction with previous studies. For example, Schoonhoven et al. [2] reports that for every 30 minutes surgery is prolonged beyond 4 hours, the risk of developing pressure ulcers is increased by approximately 33%. Given the small number of patients with pressure ulcers in this study (n= 5) and in the study published by Schoonhoven et al. [2] (n = 21) the results of the statistical analysis should be interpreted with caution. Further analysis in larger trials will be necessary to determine the link between length of surgery and the occurrence of pressure ulcers.

Conflict of Interest
No conflict of interest has been declared by the authors.

References