Pressure Injury Current Awareness Service

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Pressure ulcers/injuries (PU/Is) affect the social, mental, and physical well-being of patients; increase treatment costs; prolong hospital stays; increase patient risk for infections; and may independently decrease life expectancy; Purpose: The aim of this retrospective study was to examine the association between PU/I development and mortality in a large cohort of consecutively admitted critically ill patients; Methods: Data from adult patients (≥18 years of age) admitted to an intensive care unit (ICU) between 2010 and 2013 were extracted from the ICU electronic clinical information system Patients were excluded if they had a PU/I present on admission, no recorded admission modified Jackson/Cubbin (mJ/C) or Sequential Organ Failure Assessment (SOFA) score, or their ICU outcome was undetermined The mJ/C risk scale (score range 9-48) was used to assess the PU/I risk (the lower the score, the higher the PU/I risk), the SOFA score (score range 0-24; the higher the SOFA score, the sicker the patient, with a higher risk of death) was used to assess the severity of the condition and outcome ICU outcome was defined as 1) moved from the ICU to a ward/recovering or 2) no response to ICU treatment/deceased All data were transferred to statistical software for analysis Logistic regression analysis was used to examine the outcome related to PU/I development, SOFA, and mJ/C scores Descriptive contingency tables of different scenarios were used to further evaluate relationships among different risk factors related to mortality; the Wald χ² test was used to assess the statistical significance of the contingency tables: Results: Of the 6582 patients admitted, 6089 were included for analysis Two hundred, one (201) had a PU/I on admission, 212 had missing mJ/C or SOFA scores, and ICU outcome was undetermined in 80 patients Patient mean age was 611 ± 158 (range 18-94) years; 3891 (639%) were male, average length of stay (LOS) was 36 days, denoted by quartile (Q) median 158 days; Q1: 09, Q3: 39 days), and 1589 (261%) stayed 3 days or more in the ICU The incidence of PU/I was 69% (423 patients), and ICU mortality rate was 91% (n553) The mean LOS of patients with PU/I was 1335 ± 1556 days (median 895, Q1: 488, Q3: 162) and 284 ± 387 days for patients with no PU/I (median: 120, Q1: 090, Q3: 317; P <0001) Mean LOS was 342 ± 595 days (median: 130, Q1: 090, Q3: 370) among recovering and 500 ± 717 days among deceased patients (median 256, Q1: 126; Q3: 640; P <0001) The proportion of patients with an admission mJ/C score of 29 or less ranged from 488% to 515%, and the mean SOFA score was 70 ± 32 PU/I development and SOFA or mJ/C scores were independent predictors of mortality The probability of a negative outcome was higher in persons with PU/Is compared to persons with no PU/Is Persons with lower SOFA scores (ie, less severely ill patients) and higher mJ/C scores for each factor separately (ie, at low risk of PU/I development) each factor separately had a lower mortality risk; Conclusion: PU/I development in critically ill patients treated at an ICU is an independent predictor of mortality, even though the PU/I incidence and hospital mortality were relatively low The ICU admission SOFA and mJ/C score also were independent prognosticators of ICU mortality Future research could focus on the role of different steps in the cascade of PU/I development, especially to the role of inflammation


The purposes of this retrospective study were to document the prevalence of serum C-reactive protein (CRP), a biomarker of inflammation, and its potential predictive value for Rehabilitation outcomes in post-acute elderly inpatients The medical records of 304 elderly subjects admitted to our Rehabilitation Institute for any disease following an acute event were examined High levels of CRP (> 05 mg/dl) were present in
100% of the subjects, and the value > 15 mg/dl (n 86) predicted unfavourable outcomes (n 28; 325% of the patients: death or transfer to other institutions) Among the patients with favourable outcomes (discharge home n 255), 627% still exhibited severe disabilities Pressure ulcers and low functional status also predicted unfavourable outcomes The study highlights the need for future investigations into the possible reduction of CRP levels, after an intensive nutritional approach and combined physical interventions

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Objective: Prevention of recurrent pressure ulcers (PU) is one of the most important challenges in wound care, furthermore, the risk factors for recurrent PUs are still not fully understood This study aimed to explore the risk factors for recurrent PU development within two weeks, including biophysical skin properties, pro-inflammatory cytokine (tumour necrosis factor [TNF]-α) levels and bacterial species, in older patients Method: This prospective study was conducted in a long-term care facility with patients whose PU had healed within two months Biophysical skin properties were evaluated by stratum corneum hydration, pH, sebum content and transepidermal water loss TNF-α level was measured using skin blotting Skin bacteria were collected using tape stripping and determined by species-specific gene amplification These parameters, along with Braden scale and interface pressure, were evaluated every two weeks for a total period of eight weeks A penalised generalised estimating equation analysis was used to determine the risk factors for recurrent PUs Results: In total, 20 patients were included in this study, with 57 observations Of these, recurrent PU was seen in eight observations Elevated of pH (p0049; odds ratio [OR] per 1 unit391, 95% confidence interval [CI]:101–1515), presence of Acinetobacter spp (p0039; OR versus culture-negative628, 95%CI:110–3586) and higher interface pressure (p0008; OR per 1 mmHg106, 95%CI:101–110) on the healed PU were significantly related to the development of recurrent PU Conclusion: Higher pH, existence of Acinetobacter spp and higher interface pressure on the site of the healed PU were associated with the development of recurrent PUs in older patients undergoing conservations treatments

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Objective: This study aimed to evaluate the effect of peppermint gel on the prevention of pressure injuries in patients with head trauma admitted to neurosurgical intensive care units Design: This double blind, randomized, controlled clinical trial study was conducted on 150 patients with head trauma admitted to the ICU Using sealed envelopes, patients were assigned randomly into two intervention (n 75) and control (n 75) groups Setting: The study was conducted in the ICUs of a university hospital and a general hospital in Shiraz, Iran Intervention: The intervention group received peppermint gel three times a day up to 14 days during the skin care as a layer on the skin areas exposed to the risk of pressure injuries The control group used a placebo gel Primary Outcomes: The expected outcome in this study was the incidence of pressure injuries stage I, which once daily was evaluated by pairs of observers with the National Pressure Ulcer Advisory Panel Results: The incidence rate of pressure injuries was 228% and 77% in the intervention and the control groups, respectively The chi-square test result showed a significant deference between two groups (P < 0001) Sacrum was the most common site for incidence of the pressure injuries Conclusion: The findings showed that the peppermint gel has a positive effect in the prevention of pressure injuries in the patients with head trauma admitted to ICUs So, the use of this gel is suggested as an easy and low-cost method for prevention of pressure ulcers in the patients admitted to ICUs

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Objective: Severe pressure ulcers (PUs) do not respond to conservative wound therapy and need surgical repair. To better understand the pathogenesis and to advance on new therapeutic options, we focused on the proteomic analysis of PU, which offers substantial opportunities to identify significant changes in protein abundance during the course of PU formation in an unbiased manner. Approach: To better define the protein pattern of this pathology, we performed a proteomic approach in which we compare severe PU tissue from spinal cord injury (SCI) patients with control tissue from the same patients. Results: We found 76 proteins with difference in abundance. Of these, 10 proteins were verified as proteins that define the pathology: antithrombin-III, alpha-1-antitrypsin, kininogen-1, alpha-2-macroglobulin, fibronectin, apolipoprotein A-I, collagen alpha-1 (XII) chain, haptoglobin, apolipoprotein B-100, and complement factor B. Innovation: This is the first study to analyze differential abundance protein of PU tissue from SCI patients using high-throughput protein identification and quantification by tandem mass tags followed by liquid chromatography tandem mass spectrometry. Conclusion: Differential abundance proteins are mainly involved in tissue regeneration. These proteins might be considered as future therapeutic options to enhance the physiological response and permit cellular repair of damaged tissue. (© Montserrat Baldan-Martin, et al 2020; Published by Mary Ann Liebert, Inc)

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Objectives: Pressure ulcers are localized cellular damages to the skin and underlying tissues caused by pressure, shearing and frictional force. The aim of this study is to assess practices towards pressure ulcer prevention among nurses in the Central Zone of Tigray, Ethiopia, from September 10, 2017 to June 15, 2018. This study has also identified the major barriers that hamper nurses from preventing pressure ulcers. These barriers were heavy workload, inadequate training, and lack of universal guideline and shortage of resource. 172% of the participants had a good practice and 822% of the respondents had a poor practice of pressure ulcer prevention. Result: Finding of this study showed that respondents have inadequate knowledge which may have led to their poor practice towards pressure ulcer prevention. Immediate intervention should be done on public hospitals of central Tigray to improve nurses' practice towards pressure ulcer prevention.

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Objectives: Tracheostomy-related pressure injuries (TRPI) have been demonstrated to occur in approximately 10% of tracheostomy patients. In this study, we present TRPI outcomes after implementation of a standardized tracheostomy care protocol; Methods: A tracheostomy care protocol was developed by an interdisciplinary quality improvement program and implemented on July 1, 2016. The protocol was designed to minimize factors that contribute to the development of TRPI. Rates of TRPI over the subsequent 20 months were compared to the year before implementation; Results: 9 out of 85 patients (10.6%) developed TRPI in the pre-protocol cohort compared to 0 of 137 (0%) in the post-protocol cohort, which was a statistically significant decrease by Fisher's exact test with a p-value of 0.0001. Pearson's correlation coefficient demonstrated a negative correlation between age and post-operative day of diagnosis (r = -0.641, p = 0.003), indicating that older patients develop TRPI more quickly; Conclusions: Interdisciplinary peri-operative tracheostomy care protocols can be effective in decreasing rates of TRPI.

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This 1:5 case-control study aimed to identify the risk factors of hospital-acquired pressure injuries (HAPIs) and to develop a mathematical model of nomogram for the risk prediction of HAPIs. Data for 370 patients with HAPIs and 1971 patients without HAPIs were extracted from the adverse events and the electronic medical systems. They were randomly divided into two sets: training (n = 1951) and validation (n = 390). Significant risk factors were identified by univariate and multivariate analyses in the training set, followed by a nomogram constructed Age, independent movement, sensory perception and response, moisture, perfusion, use of medical devices, compulsive position, hypoalbuminaemia, an existing pressure injury or scarring from a previous pressure injury, and surgery sufferings were considered significant risk factors and were included to construct a nomogram. In both of the training and validation sets, the areas of 0.90 under the receiver operating characteristic curves showed excellent discrimination of the nomogram; calibration plots demonstrated a good consistency between the observed probability and the nomogram's prediction; decision curve analyses exhibited preferable net benefit along with the threshold probability in the nomogram. The excellent performance of the nomogram makes it a convenient and reliable tool for the risk prediction of HAPIs. (© 2020 Medicalhelplinescom Inc and John Wiley & Sons Ltd)
Background & Aim: Non-invasive ventilation is a procedure that reduces respiratory stress and improves gas exchange, using a patient-ventilator interface; however, it presents consequences such as the development of facial pressure ulcers. We aim to identify the factors associated with facial pressure ulcers in Intermediate Care Facilities. Patients submitted to non-invasive ventilation Methods & Materials: A cross-sectional descriptive and analytic study was performed in an intermediate care facility of a Portuguese hospital, from August to October of 2018. The study population consisted of patients hospitalized in this unit, who underwent to non-invasive ventilation. Data were collected through an observational form developed to obtain the information of the entire period of hospitalization of the patient. The software used to analyze the data was IBM SPSS Statistics for Windows, Version 23. For the descriptive analysis, absolute and relative frequencies also means and standard deviations were computed. Also, to describe the association between the variables, The point biserial correlation coefficient (rpb) were calculated. For data analysis, a significance level of 0.05 (α) was used. Results: 146% of the individuals developed PU, all in the nasal pyramid. NIV was used for 607±391 days, and PU developed between the 3rd and the 20th day. It was observed that the presence of PU had a significant positive correlation with the GCS score (rpb0.390, p<0.012) and a significant negative correlation with the duration of NIV (rpb-0.438, p=0.004). Dependency level, PU risk, and nutritional risk did not correlate with the development of PU. Conclusion: The pressure ulcers associated with non-invasive ventilation appear to be more frequently developed on the nasal pyramid and between the 3rd and the 20th day. Moreover, the level of consciousness and the time of administration of non-invasive ventilation are associated with the development of pressure ulcers.
The aim of the study was to describe the prevalence and general characteristics of acute and chronic wounds in 2018 in Alentejo (Portugal) continuing care units. In order to look at associations, wound characteristics were studied at location, type, place of acquisition, number, and duration, and patient characteristics were sex, age, and presence of risk factors. During the first 2 weeks of February 2018, a total of 770 patients were assessed at continuing care units of Alentejo. Of these, 135 exhibited wounds, a prevalence of 17.5%. Almost two out of three patients (63%) had arterial hypertension, slightly more than one in three (37%) had a stroke and/or immobility and 30% had diabetes. Of the total wounds identified, 18% were acute wounds and 82% were chronic wounds. Of the 24 acute wounds, traumatic wounds (76%), and surgical wounds (22%) were the most prevalent. The four types of pressure ulcers represented 80% of the chronic wounds. The median duration of the pressure ulcers was 55 months and 25% had duration over 10 months.


Context/Objective: Clinicians have guidance on prevention and treatment of pressure injuries, but little is known regarding characteristics of patients who develop additional pressure injuries Thus, our objective was to explore the first pressure injury and characteristics of individuals who develop subsequent pressure injuries during acute care and inpatient rehabilitation following spinal cord injury Design: Secondary analysis of longitudinal data from a cohort of adults following initial traumatic spinal cord injury Setting: Urban acute care hospital and inpatient rehabilitation facilities Participants: A convenience sample of adults (n=38) who developed at least one pressure injury during acute care and inpatient rehabilitation Interventions: Not applicable Outcome Measures: The primary outcomes were number of additional pressure injuries and stage of care during which they occurred, prior to community discharge Results: A covariate-adjusted model revealed that participants with ASIA D injury had a 67% decrease in the rate of additional pressure injury incidence compared to participants with ASIA A injury (Rate Ratio 33, 95% CI [013, 088]) The severity of the first pressure injury had no significant association with subsequent pressure injury incidence (P 0) Conclusion: These findings indicated that individuals with greater sensory and motor loss had an increased risk of developing additional pressure injuries compared to individuals with less impairment These results are meaningful for stakeholders interested in understanding factors associated with developing subsequent pressure injuries during the index rehabilitation stay and provide a foundation for future research in this area


Study Design: A national, retrospective, cross-sectional study Objectives: To analyze the prevalence of pressure injury (PI), and characteristics associated with PI development in the hospitalized population of persons with a newly acquired spinal cord injury (SCI) between 2004 and 2014; Setting: All three specialized Spinal Cord Units in Norway; Methods: Demographic data related to prevalence and potential risk factors were retrieved from the electronic medical record (EMR) Statistical analyses were performed, using IBM SPSS Statistics, version 23; Results: We identified 1012 individuals with a new SCI Mean age at injury was 48 years (SD 19) The period prevalence of PI was 16% (95% CI 014-019), and identified PI associations were complete SCI (OR 01), being injured abroad (OR 24), bowel (OR 13), and bladder (OR 92) dysfunction; comorbidities like diabetes mellitus 1 (OR 79), diagnosed depression (OR 38), ventilator support (OR 30), drug abuse (OR 30), and concurrent traumatic brain injury (OR 17) Individuals in the age group of 15-29 years had higher odds of PI compared with middle-aged individuals (45-59 years); Conclusion: PI is a serious complication after SCI The association between depression or comorbidity and PI occurrence should be investigated more thoroughly We recommend implementation of a simple follow-up program regarding observation and prevention of PI Increased awareness of factors that could contribute to PI will help to focus on better prevention and early recognition of PI This will contribute to more optimal rehabilitation


Wound edge–based propeller perforator flaps have often been applied to soft tissue reconstruction of sacral pressure sores Although this flap often causes necrosis due to overtension and twisting of the perforators, salvage surgery using a postoperative delay technique has not been reported thus far In this article, we present a case in which we successfully reconstructed a sacral pressure sore using a wound edge–based propeller perforator flap The flap caused severe congestion, which had a concern due to the potential wide-
ranging flap loss; it was subsequently salvaged by an emergent delay procedure and negative-pressure wound therapy on day 2 postoperatively.


The article offers information on Pressure ulcers (PUs), also known as pressure sores, bed sores and decubitus ulcer, have been recognized as a disease since time immemorial.


Supplemental digital content is available in the text. Healthcare communities are rapidly embracing Health Level 7’s Fast Healthcare Interoperability Resources standard as the next-generation messaging protocol to facilitate data interoperability. Implementation-friendly formats for data representation and compliance to widely adopted industry standards are among the strengths of Fast Healthcare Interoperability Resources that are accelerating its wide adoption. Research confirms the advantages of Fast Healthcare Interoperability Resources in increasing data interoperability in mortality reporting, genetic test sharing, and patient-generated data. However, few studies have investigated the application of Fast Healthcare Interoperability Resources in nursing-specific domains. In this study, a Fast Healthcare Interoperability Resources document was generated for a use case scenario in a home-based, pressure ulcer care setting. Study goals were to describe the step-by-step process of generating a Fast Healthcare Interoperability Resources artifact and to inform nursing communities about the advantages and challenges in representing nursing data with Fast Healthcare Interoperability Resources. Overall, Fast Healthcare Interoperability Resources effectively represented the majority of the data included in the use case scenario. A few challenges that could potentially cause information loss were noted such as the lack of standardized concept codes for value encoding and the difficulty directly connecting an observation to a related condition. Continuous evaluations in diverse nursing domains are needed in order to gain a more thorough insight on potential challenges that Fast Healthcare Interoperability Resources holds in representing nursing data.


Aim: To examine the effectiveness of a pressure injury prevention program for private for-profit nursing homes; Design: This study was a two-arm cluster randomized controlled trial. Ten private for-profit nursing homes made up the clusters; Methods: The participants were nursing home residents who aged 60 or above regardless of whether or not having pre-existing pressure injuries and also three types of nursing home assistants who provided direct care to the residents from 10 private for-profit nursing homes. These 10 nursing homes were randomly assigned to either the experimental or the control group. There were 477 and 536 resident participants and 51 and 62 nursing assistant participants in the experimental and control groups, respectively. The residents were the study participants and the nursing assistant participants were the interveners. The experimental group had the pressure injury prevention program implemented while the control group received the usual care. The primary study outcome which was the pressure injury incidence was analysed by GEE. Significance was set at a p-value of ≤05. The data were collected between
September 2017-March 2018; Result: There were significant interactive effects of time and group on the incidence of pressure injuries (p 0.015) and on the skill performance of the nursing assistant participants (p < 0.001); Conclusions: An evidence-based pressure injury prevention program reduced the development of the pressure injuries and improved the skill performance of the nursing assistant participants. It is highly recommended that private for-profit nursing homes with high proportion of non-professional nursing assistants and insufficient nurses adopt this program for improving the prevention care of pressure injuries; Impact: This research has an impact on prevention care of pressure injury in private for-profit nursing homes with high proportion non-professional nursing assistants which have the similar characteristics as the nursing homes studied in various regions and countries; Trial Registration: The Controlled Trial registration ID is NCT02270385 (© 2020 John Wiley & Sons Ltd)

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Patient repositioning is a recommended intervention to prevent or treat pressure ulcers (PUs) One option under consideration is the tailored repositioning according to patient characteristics. but more knowledge is needed on how different repositioning patterns influence on skin pressure To determine what degree of inclination of the body in bed generates more pressure in the trochanteric area Regionally, to analyze the influence of factors such as gender, age and anthropometric characteristics in the variations of this pressure Analytical cross-sectional study Body Mass Index (BMI), lean mass and fat mass were measured in healthy volunteers subject to different inclinations (90°, 60° and 30°) in right lateral decubitus Pressure was measured with a capacitive surface In total, 146 subjects were included, of which 45 were men and 101 women The results showed pressure differences due to the inclination according to gender and anthropometric values, being statistically significant in men at 90° and 60°, and in women at 30° (hombres 90° p 0.026, 60° p 0.049; mujeres 30° p 0.036) según prueba Brown-Forsythe There are differences in the pressures of the trochanteric zone depending on anthropometric factors and by gender, in different body positions Obese people exerted a higher pressure in the trochanter area at 30° of body inclination than overweight, normal weight and underweight people, respectively From the clinical point of view, these findings invite to consider a possible differentiation in the repositioning interventions of the patients, according to gender and BMI, as a preventive strategy for PUs • Different distribution of body fat vary the pressure exerted by a degree of inclination and in a certain body plane • The measurement with capacitive surface shows the differences in the pressures of the trochanter area • These results may guide towards a more individualized indication of repositioning observations in clinical practice

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The aim of this study was to describe the MDrPU on patients with prolonged bed rest in the ICU A prospective cohort design was used in this study We used non probabiliby consecutive sampling A total of 32 samples were included in this study The Braden scale and NPUAP staging were used to predict the risk of pressure ulcers, and ulcers staging in 5 days Statistical analysis were conducted using Chi-Square, Fisher Exact, and ROC Curve The result showed the prevalence of medical devices was 219% Most pressure ulcers related to medical devices was stage 2 (571%) with the most common area for the wounds was on fingers (375%) Braden scale prediction score also showed specificity (56%) and sensitivity (92%) Numerous risk factors for pressure ulcer development were identified and Braden scale could to predict the risk of pressure ulcers related to medical devices

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Objective: To translate the Pieper-Zulkowski Pressure Ulcer Knowledge Test into Chinese and analyze the internal consistency of the adapted questionnaire; Methods: The Pieper-Zulkowski Pressure Ulcer Knowledge Test was translated into Chinese, and the internal consistency and content validity of the translated test were assessed Further, the authors conducted a cross-sectional survey using the test among 476 RNs in six hospitals in four cities of China; Main Results: The Cronbach α was 93 for all items and 83, 82, and 84 for
the prevention, staging, and wound description subscales, respectively. The validity of content was acceptable (content validity index 0.83-1.00) The average correct scores were as follows: total, 6937%; prevention, 7338%; staging, 6961%; and wound description, 6487%. Nurses with more advanced professional titles or wound care certifications scored significantly higher than other test takers. Participants who had conducted internet research about pressure injuries or read the pressure injury guidelines also had significantly higher scores than those who had not. Conclusions: The translated instrument can effectively measure Chinese nurses’ knowledge about pressure injuries.


There are considerable human costs associated with pressure ulcerations, along with a significant economic burden to healthcare providers. Despite the majority of hospital-acquired ulcers believed to be preventable, the number of people developing these remains high. Clinical guidelines recommend performing robust, structured assessments upon admission to an acute hospital, or as soon as feasible, to identify individuals at risk of developing pressure-related skin breakdown. Risk-specific interventions should then be employed to reduce the likelihood of developing pressure ulcerations, with daily reviews and reassessment when clinical indications are present to allow any skin damage to be noted at an early stage. This article presents a multidisciplinary collaboration across all four nations to develop simple and effective tools to improve the quality and performance of comprehensive inpatient foot checks which allow for the recognition, prevention, and management of heel pressure ulcers, reducing the risk of avoidable harm to patients.


Objective: to identify care practices used by nurses who work at the Family Health Strategy program to prevent and treat friction and pressure injuries in elderly people living in the community and perform the corresponding nursing diagnosis. Methods: qualitative and descriptive study carried out with 25 Family Health Strategy nurses, inked to the Municipal Health Secretariat of São José, Santa Catarina, Brazil. A semi-structured questionnaire was applied between March and May 2018 to collect data, which were submitted to thematic content analysis. Results: four different categories related to nursing practices for elderly people's skin care emerged: tools for clinical evaluation of elderly people's skin; evaluation of risk of injuries in elderly people; injury staging; and treatment of the injuries in elderly people. Conclusion: the need for higher institutional investment in continuing education actions oriented toward nursing professionals was observed, so good care practices can be implemented in preventing, staging, and handling the injuries under discussion.


Significance: A systematic approach to develop experts-based recommendations could have a favorable impact on clinical problems characterized by scarce and low-quality evidence as heel pressure ulcers. Recent Advances: A systematic approach was used to conduct a formal consensus initiative. A multidisciplinary panel of experts identified relevant clinical questions, performed a systematic search of the literature, and created a list of statements. The GRADE Working Group guidelines were followed. An independent international jury reviewed and voted recommendations for clinical practice. Consent was developed according to Delphi rules and GRADE method was used to attribute grade of strength. Critical Issues: The extensive search of the literature retrieved 42 pertinent articles (26 clinical studies, 7 systematic reviews or meta-analysis, 5 other reviews, 2 consensus-based articles, and 2 in vitro studies). Thirty-five recommendations and statements were created. Only 1 of 35, concerning ankle-brachial pressure index reliability in diabetic patients, was rejected by the panel. No sufficient agreement was achieved on toe brachial index test to rule out the orphan heel syndrome, removing dry eschar in adult patients without vascular impairment, and using an antimicrobial dressing in children with infected heel pressure injuries. Eleven recommendations were approved with a weak grade of strength. Experts strongly endorsed 20 recommendations. Offloading, stages I and II pressure injuries, and referral criteria were areas characterized by higher level of agreement.
Future Directions: We believe that the results of our effort could improve practice, especially in areas where clear and shared opinions emerged. Barriers and limits that could hinder implementation are also discussed in the article.

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Although pressure injury (PI) is preventable, the number of patients developing this type of injury is still high. In this prospective cohort study, we aimed to assess whether high risk for undernutrition was a risk factor for PI in 1937 patients aged ≥18 at six hospitals in Sao Paulo, Brazil. Patients' risk for undernutrition was assessed using three unique screening tools: Risk for PI was assessed using the Braden Scale Data were analyzed using Poisson regression with robust variance (95% CI, P ≤ 0.05). While 571% of patients were at risk for undernutrition in the Nutritional Risk Screening (NRS 2002), only 368% and 26% were at risk in the Braden Scale Nutrition Subscale (BSNS) and Subjective Global Assessment of Nutritional Status (SGANS), respectively. The cumulative incidence rate was 59%. Of those who developed PI, 91.2%, 56.2%, and 18.4% were at risk for undernutrition in the NRS 2002, BSNS, and SGANS scales, respectively. We found a significantly higher risk for PI in patients who were at risk for undernutrition compared with those who were not at risk, supporting previous evidence about the role of undernutrition as a key risk factor for PI in hospitalised patients. © 2020 Medicalhelplinescom Inc and John Wiley & Sons Ltd.

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Aims: To assess the prevalence of catheter-associated meatal pressure injury in acute hospitalized males, to determine risk factors for its formation and to propose a grading system for meatal pressure injury severity. Methods: In this cross-sectional study, we screened all adult males concurrently hospitalized at a tertiary medical center for indwelling urethral catheters and for meatal pressure injury. We proposed a system to grade meatal pressure injury severity and used logistic-regression modeling to calculate odds ratios (ORs) of possible risk factors. Results: A number of 168/751 (22%) hospitalized males with indwelling urethral catheters were included. Median age was 705 (inter-quartile range [IQR]: 570-803) years, median time from catheterization 55 (IQR: 2-11) days. A total of 61 (36%) had meatal pressure injury, as early as the first day after catheterization. Grade III injuries (<2 cm ulcer) developed in 22 (13%) patients, earliest noted on the second catheter day, and grade IV injuries (≥2 cm) in 7 (4%) patients, as early as 5 days post-catheterization. In a multivariable analysis, catheter fixation (OR: 0.26 [95% CI: 0.10-0.70]; P 0.08) was associated with reduced risk of meatal pressure injury, while catheter presence over 14 days (OR: 146 [95% CI: 101-108]; P 0.05) and other skin ulcers (OR: 245 [95% CI: 105-571]; P 0.038) were associated with a higher risk of meatal pressure injury. Conclusions: Meatal pressure injury is a common complication of...
The prevalence of pressure injuries in the intensive care unit (ICU) setting is high with rates ranging from 131% to 455%. Evaluation of interventions to prevent pressure injuries should be informed by preliminary research to identify factors that should be considered during the design of future trials. The study objectives were to evaluate the process of participant recruitment and monitoring in the ICU; measure the maintenance of body angle (in the side-lying lateral tilt position) and head and neck alignment angle (in the supine position) among immobile critically ill patients when using a purpose-designed positioning device and usual care equipment; and ascertain the time required to position patients with the purpose-designed positioning device and the usual care equipment. A prospective, observational, feasibility study was conducted in an ICU in Victoria, Australia. The sample was immobile critically ill adults at high-risk of developing pressure injuries. The usual care interventions were pillows, foam wedges, and rolled towels, and the intervention device was the Z-Flo Fluidized Positioner. The body angle and head and neck alignment were measured on six occasions (at baseline, 1 hour, and 2 hours). The time required for positioning was also measured. The sample was predominately male (n = 5, 62%) with a mean age of 59 years. The majority of patients (n = 106, 92%) were not immobile and therefore were ineligible to participate. A total of 48 turning and positioning interventions were observed. The degree of difference from baseline to 2 hours was no more than three degrees for all the devices (the Fluidized Positioner 25°-26°, the foam wedge 29°-27°, and the pillow 23°-21°). For the head and neck position, the degree of difference from baseline to 2 hours was the greatest for the pillow and rolled towel (78°-71°, a difference of 7°) and the pillow alone (79°-74°, a difference of 5°). The degree of difference was the lowest for the Fluidized Positioner.
Positioner (84°-86°, a difference of 2°) Future research to evaluate positioning equipment in the ICU should consider patient eligibility characteristics, particularly immobility. The conduct of preliminary studies to inform the design of larger pressure injury prevention trials is recommended (© 2020 Medicalhelplines.com Inc and John Wiley & Sons Ltd)


Objectives: To identify the facilitating and complicating factors for the prevention and treatment of pressure injury (PI) in the management of hospitalized patient care; Methods: This is a cross-sectional study, conducted with 197 nursing professionals in three public hospitals; Results: Among the identified factors, it is noteworthy that 59% of respondents are unaware of the PI prevention protocol, 27% do not use clinical evaluation for daily sizing of professionals, more than 52% believe that no facilitating elements exist, and 76% argue that there are complicating elements for the prevention of PI As for the treatment, a little over 60% reported that the patient and the injury are evaluated by nurses, with 54% of the procedures being prescribed by the physician and 46% of the therapy being performed by nursing technicians; Conclusions: We conclude that the prevention and treatment of PI require shared management, with integrated actions among the care executors.


Aims and Objectives: This study aims to explore nurses' perceptions and experiences regarding pressure injuries caused by medical devices and to understand the perceived challenges and barriers nurses face in preventing medical device-related pressure injuries; Background: Nurses have a responsibility to prevent pressure injuries and play a major role in their prevention As there has been a lack of research on medical device-related pressure injuries, not much is known about nurses' perceptions and experiences This therefore hinders the establishment of effective and efficient interventions in nurses' education and in the practical environment; Design: A descriptive qualitative design was adopted, and the COREQ checklist was employed to report on the current study; Methods: The study was conducted at an acute care hospital in Singapore, Purposive sampling was used, and a total of 21 enrolled and registered nurses who had recent experiences with medical device-related pressure injuries were recruited between August and December 2018. Face-to-face interviews were conducted using a semi-structured interview guide A thematic analysis was performed to analyse the qualitative data; Results: Five themes emerged regarding pressure injuries: (1) preventable yet unavoidable, (2) everyone's responsibility, (3) harmonising theory with practice reality, (4) pre-existing conditions may limit injury prevention and management; and (5) nurses expressed a need for experiential training; Conclusions: The study's findings could be used to develop improvements in nursing practice and policy at acute care hospitals, as well as to improve awareness of medical device-related pressure injuries among healthcare professionals. Moreover, the findings can also inform future research studies to develop effective evidence-based practices and improve patient outcomes; Relevance to the Clinical Practice: This study reveals the unique challenges and dilemmas that nurses face and will help to inform healthcare institutions and management in developing programmes and improving protocols to reduce the incidence rate of pressure injuries caused by medical device (© 2020 John Wiley & Sons Ltd)


Background: Intraoperatively acquired pressure ulcers are serious postsurgical complications requiring additional treatment, reoperation, and extended hospitalization. No study has investigated the frequency of the ulcers caused by compression with a pelvic positioner, which is used in hip surgeries to stabilize patients in the
lateral decubitus position; Methods: This retrospective study investigated the risk factors and the frequency of the ulcers caused by the use of pelvic positioners in hip surgeries The records of patients who underwent surgical procedures under general anesthesia at our institution between January 1, 2016 and March 31, 2018 were reviewed The inclusion criterion for the assessment of risk factors was hip surgery in the lateral decubitus position stabilized by a pelvic positioner The exclusion criteria were patients with trauma, missing data, or a pre-existing pressure ulcer Finally, the study included 229 patients (265 hip surgeries) All the patients were positioned in the lateral decubitus position with the assistance of either a pelvic positioner, which had a single support fixture located over the pubic symphysis or a double support fixture located over the bilateral anterior superior iliac spine Intraoperatively acquired pressure ulcers were diagnosed when ulcers were absent on admission and the redness that was observed immediately after surgery remained after 24 h Multivariate analysis was used to identify factors associated with an increased risk for ulcers; Results: Ulcers developed in 8 of 1810 (0.44%) patients who underwent orthopedic surgery Seven of the 265 (26.4%) patients who underwent hip surgery in the lateral decubitus position stabilized by a pelvic positioner developed ulcers All ulcers were located on areas of the body that were compressed by the pelvic positioner After identifying controls for patient height (less than 154 cm), surgery duration (longer than 180 min), blood loss (more than 355 ml), and type of pelvic positioner used, we identified the independent risk factors for ulcers to be patient height < 154 cm (adjusted odds ratio, 128; p-value, 0.0032) and the use of pelvic positioners with pubic bone support (adjusted odds ratio, 1053; p-value, 0.0047); Conclusion: The use of pelvic positioners with pubic bone support should be avoided in patients with a height of < 154 cm to decrease the risk of ulcers © The Author(s) 2020

Pressure injury (PI) is a remarkable problem among patients following stroke The Neuman System Theory can be applied by nurses to manage PI in patients following stroke The emphasis of this theory on prevention levels, especially primary and tertiary prevention, has made it compatible with standard PI guidelines

Trauma patients with a serious injury to the head or neck can remain immobilised with a cervical collar (C-collar) device in situ and are subsequently exposed to device-related skin integrity threats This study aimed to determine the incidence and risk factors associated with the development of C-collar-related pressure injuries (CRPIs) in an intensive care unit This retrospective longitudinal cohort study was conducted in an Australian metropolitan intensive care unit Following ethical approval, data from patients over 18 years, who received a C-collar were retrieved over a 9-year period Chi square and t-tests were used to identify variables associated with CRPI development A logistic regression model was employed to analyse the risk factors Data from 906 patients were analysed Nine-year pressure injury incidence was 169% (n 154/906) Pressure injury development directly associated with a C-collar increased by 33% with each repositioning episode (odds ratio 1328, 95% confidence interval 1024-1723, P 033) Time in the C-collar (104 to 25 days, P 002) and length of stay in intensive care unit (ICU) (201 to 161 days, P <0.01) were associated with pressure injury development Patients with C-collar devices are a vulnerable group at risk for pressure injury development because of their immobility and length of ICU stay © 2020 Medicalhelplinescom Inc and John Wiley & Sons Ltd

Introduction: Prolonged bed rest without repositioning can lead to pressure injuries However, it can be challenging for caregivers and patients to adhere to repositioning schedules A device that alerts caregivers when a patient has remained in the same orientation for too long may reduce the incidence and/or severity of pressure injuries This paper proposes a method to detect a person's orientation in bed using data from load cells placed under the legs of a hospital grade bed; Methods: Twenty able-bodied individuals were positioned into one of three orientations (supine, left side-lying, or right side-lying) either with no support, a
pillow, or a wedge, and the head of the bed either raised or lowered Breathing pattern characteristics extracted from force data were used to train two machine learning classification systems (Logistic Regression and Feed Forward Neural Network) and then evaluate for their ability to identify each participant's orientation using a leave-one-participant-out cross-validation; Results: The Feed Forward Neural Network yielded the highest orientation prediction accuracy at 942%; Conclusions: The high accuracy of this non-invasive system's ability to a participant's position in bed shows potential for this algorithm to be useful in developing a pressure injury prevention tool (© The Author(s) 2020)

Check for full text

In June 2018, the NHS Greater Glasgow and Clyde podiatry service redesigned its offerings to accept responsibility for all foot and ankle wounds across the health board This included inpatient pressure damage for individuals who did not have diabetes and were not previously managed by podiatry, as well as those who did This article describes the impact this radical redesign had on referrals to the podiatry service and on clinical outcomes

Check for full text

Background: LL-37 peptide is a member of the human cathelicidin family, and has been shown to promote the healing of pressure ulcers However, the low stability of this peptide within the wound environment limits its clinical use Chitosan (CS) hydrogel is commonly used as a base material for wound dressing material; Methods: CS hydrogel (25% w/v) was encapsulated with LL-37 Cytotoxicity of the product was examined in cultured NIH3T3 fibroblasts Effects on immune response was examined by measuring tumor necrosis factor-α (TNF-α) release from RAW 2647 macrophages upon exposure to lipopolysaccharides Antibacterial activity was assessed using Staphylococcus aureus Potential effect on pressure ulcers was examined using a mouse model Briefly, adult male C57BL/6 mice were subjected to skin pressure using magnets under a 12/12 h schedule for 21 days Mice were randomized to receive naked LL-37 (20 μg), chitosan gel containing 20-μg LL-37 (LL-37/CS hydrogel) or hydrogel alone under the ulcer bed (n 6) A group of mice receiving no intervention was also included as a control; Results: LL-37/CS hydrogel did not affect NIH3T3 cell viability At a concentration of 1-5 μg/ml, LL-37/CS inhibited TNF-α release from macrophage At 5 μg/ml, LL-37/CS inhibited the growth of Staphylococcus aureus The area of the pressure ulcers was significantly lower in mice receiving LL-37/CS hydrogel in comparison to all other 3 groups on days 11 (8424% ± 025%), 13 (5622% ± 391%) and 15 (4812% ± 028%) Histological examination on days 15 and 21 showed increased epithelial thickness and density of newly-formed capillary with naked LL-37 and more so with LL-37/CS The expression of key macromolecules in the process of angiogenesis (ie, hypoxia inducible factor-1α (HIF-1α) and vascular endothelial growth factor-A (VEGF-A)) in wound tissue was increased at both the mRNA and protein levels; Conclusion: Chitosan hydrogel encapsulated with LL-37 is biocompatible and could promote the healing of pressure ulcers

Check for full text

"Wound, pressure ulcer and burn guidelines - 6: Guidelines for the management of burns, second edition" is revised from the first edition which was published in the Japanese Journal of Dermatology in 2016 The guidelines were drafted by the Wound, Pressure Ulcer and Burn Guidelines Drafting Committee delegated by the Japanese Dermatological Association, and intend to facilitate physicians' clinical decisions in preventing, diagnosing and treating burn injury All sections are updated by collecting documents published since the publication of the first edition Especially, the recommendation levels of dressing materials newly covered by the Japanese national health insurance are mentioned In addition, the clinical questions (CQ) regarding the initial treatment of electrical (CQ15) and chemical burns (CQ16), and also the use of escharotomy (CQ22), are newly created (© 2020 Japanese Dermatological Association)

Check for full text

The purpose of this study is to identify the reliability of interface pressure measurement performed by nurses in detecting the risk of pressure injury. This research was a cross-sectional study conducted at the Central General Hospital in eastern Indonesia, pressure assessment measured with interface pressure (the Palm Q, Cape Co Ltd, Yokosuka, Japan) with five sensors. Data were analyzed using IBM SPSS 24 statistical test to evaluate the value of interclass correlation coefficients (ICC). The intrarater reliability test between three different measurements discovered a good reliability between nurses at three different wards. Regarding to working experience, the intrarater reliability test between three different measurements also found a satisfied reliability, except in neurology ward. Palm Q sensor has an excellent reliability as interface pressure sensor in clinical setting.

Check for full text
Websites


“Risk Assessment and Prevention of Pressure Ulcers: a clinical practice guideline from the American College of Physicians” (2015)
http://annals.org/article.aspx?articleid=2173505


NICE Guideline: “Pressure ulcers: prevention and management of pressure ulcers” (April 2014)
http://www.nice.org.uk/guidance/CG179


The Trans Tasman Dietetic Wound Care Group, Evidence based practice guidelines for the nutritional management of adults with pressure injuries (2011)

Registered Nurses’ Association of Ontario - Risk asessment and prevention of pressure ulcers (2011 revised)

National Guideline Clearinghouse – predefined search
https://search.ahrq.gov/search?q=%22pressure+ulcer*%22+or+%22pressure+injur*%22


Cochrane Wounds Group
https://wounds.cochrane.org/news/reviews
The Cochrane Wounds Group was established in 1995 with the aim of using evidence from trials to conduct systematic reviews to establish the effectiveness of interventions for the prevention and treatment of wounds, and interventions for the prevention and treatment of wound complications.

National Pressure Injury Advisory Panel
http://www.npiap.com/
e-Journals

Advances in Skin & Wound Care  (Tables of Contents only)

Eplasty (formerly Journal of Burns & Wounds)  (full text)

EWMA Journal  (full text)

International Wound Journal  (Tables of Contents only)

Journal of the American College of Clinical Wound Specialists  (full text)

Journal of Tissue Viability  (full text)

Journal of Wound Care  (full text)

World Council of Enterostomal Therapists Journal  (full text 2010 onwards)

World Wide Wounds: the premier online resource for dressing materials and practical wound management information  (full text)

The mission of World Wide Wounds is to be the premier online resource for peer-reviewed information on dressing materials providing practical guidance on all aspects of wound management to health professionals worldwide.

Wound Care Advisor  (full text 2014 onwards)

Wound Management and Prevention  (Table of Contents only)

Wound Practice & Research  (full text)

Wound Repair & Regeneration  (full text with 12-month delay)

Wounds International  (full text 2012 onwards)

Wounds UK Journal  (full text 2011 onwards)

e-Books

Acute and chronic wounds  5th ed, 2016

Fast facts for wound care nursing : practical wound management in a nutshell  2011

Nutrition and wound healing  2007


### Queensland Health Libraries and Contact Numbers

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