Pressure Injury Current Awareness Service

February 2020

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Background & Aim: Pressure ulcer (PU) is a costly, painful, and often a preventable problem with varying prevalence in different health centers. PU is associated with prolonged length of stay and mortality. This systematic review and meta-analysis aimed to estimate the prevalence of PU in Iran's intensive care units (ICUs).

Methods & Materials: In this research, 9 articles published in Persian and English were studied. National (Science Information Database (SID) and Magiran) and international databases (PubMed, Scopus, and Web of Science) were searched using the keywords of pressure ulcers, bedsore, pressure sore, decubitus ulcer, pressure injury, Iran, and all of the possible combinations without time limitations.

Results: The total prevalence of PU in Iran's ICUs was 1959% (95% confidence interval [CI]: 1315-2597). The prevalence of PU in region 1 of the country (Alborz, Tehran, Qazvin, Mazandaran, Semnan, Golestan, and Gom) was 2855% (95% CI: 1227-4484), and it was 1031 (95% CI: 388-1675) in other areas of the country. Meta-regression results showed a significant relationship between the prevalence of PU and the mean age of the patients (P0012) as well as the study sample size (P0043). Conclusion: We found that the overall prevalence of PU in Iran's ICUs was relatively high. Considering the high prevalence of PU in Iranian ICUs, it seems necessary to investigate and implement effective interventions to control and reduce this problem.

A new guideline on pressure ulcer management has recently been published in the World Council of Enterostomal Therapists Journal. The guideline aims to standardise care and improve outcomes for patients with pressure ulcers.

The researchers conducted a retrospective comparative study in a tertiary hospital in the eastern region of Saudi Arabia. The programme focused on building a wound care team; providing education to hospital staff, patients, and their families; and continuous data monitoring, in addition to follow-up visits after discharge implementation of the programme was successful showing a statistically significant reduction of HAPUs from 020% in 2014 to 006% in 2018 (P value <001). The PUPP was effective in reducing the percentage of pressure ulcer cases. The programme can be extended and implemented in other hospitals.

Treatment of pressure ulcers requires removing the cause as well as eliminating factors that interfere with healing. There are no reports on the effect of medications prescribed for underlying diseases on pressure ulcers. Accordingly, the aim of this study was to investigate whether medications prescribed to patients with pressure ulcers could be a factor that influences pressure ulcer healing. We retrospectively reviewed the records of patients with pressure ulcer who were admitted to Chiba University Hospital between June 2009 and June 2015. A total of 110 patients were included in this study. In univariate analysis, there were significant differences in the prevalence of PU between patients receiving different types of medications.

Keywords: Pressure ulcer, Intensive care unit, Meta-analysis, Iran.
significant differences in corticosteroid use and total caloric intake Logistic regression analysis was performed for four factors, including corticosteroid use and total caloric intake, which were significant at P < 0.05, plus the two factors malignancy and body mass index, which were previously reported as factors that may affect pressure ulcer healing. The results showed that corticosteroid use [odds ratio (OR) 0.205, 95% confidence interval (CI): 0.046 to 0.911, P = 0.037] and total caloric intake [OR 10.02, 95% CI: 1000 to 1003, P = 0.006] were significant risk factors influencing pressure ulcer healing. This study revealed that use of corticosteroids and total caloric intake could be risk factors affecting pressure ulcer healing. These findings provide useful information for the management of pressure ulcer; © 2020 by the Wound Healing Society.

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Background: Pressure ulcers (also known as pressure sores, decubitus ulcers or bedsores) are localised injuries to the skin or underlying tissue, or both. Pressure ulcers are a disabling consequence of immobility. Electrical stimulation (ES) is widely used for the treatment of pressure ulcers. However, it is not clear whether ES is effective. Objectives: To determine the effects (benefits and harms) of electrical stimulation (ES) for treating pressure ulcers; Search Methods: In July 2019 we searched the Cochrane Wounds Specialised Register; the Cochrane Central Register of Controlled Trials (CENTRAL); Ovid MEDLINE (including In-Process & Other Non-Indexed Citations); Ovid Embase and EBSCO CINAHL Plus. We also searched clinical trials registries for ongoing and unpublished studies, and scanned reference lists of relevant included studies as well as reviews, meta-analyses and health technology reports to identify additional studies. We did not impose any restrictions with respect to language, date of publication or study setting. Selection Criteria: We included published and unpublished randomised controlled trials (RCTs) comparing ES (plus standard care) with sham/no ES (plus standard care) for treating pressure ulcers; Data Collection and Analysis: Two review authors independently selected trials for inclusion, extracted data, and assessed risk of bias. We assessed the certainty of evidence using GRADE; Main Results: We included 20 studies with 913 participants. The mean age of participants ranged from 26 to 83 years; 50% were male. ES was administered for a median (interquartile range (IQR)) duration of five (4 to 8) hours per week. The chronicity of the pressure ulcers was variable, ranging from a mean of four days to more than 12 months. Most of the pressure ulcers were on the sacral and coccygeal region (30%), and most were stage III (45%). Half the studies were at risk of performance and detection bias, and 25% were at risk of attrition and selective reporting bias. Overall, the GRADE assessment of the certainty of evidence for outcomes was moderate to high. Nineteen studies were conducted in four different settings, including rehabilitation and geriatric hospitals, medical centres, a residential care centre, and a community-based centre. ES probably increases the proportion of pressure ulcers healed compared with no ES (risk ratio (RR) 1.99, 95% confidence interval (CI) 1.39 to 2.85; I² 0%; 11 studies, 501 participants (512 pressure ulcers)). We downgraded the evidence to moderate certainty due to risk of bias. It is uncertain whether ES decreases pressure ulcer severity on a composite measure compared with no ES (mean difference (MD) -0.243, 95% CI -0.514 to 0.03; 12 studies, 561 participants (613 pressure ulcers)). We downgraded the evidence to low certainty due to risk of bias, indirectness and imprecision. ES may be associated with an excess of, or difference in, adverse events (13 studies; 586 participants (602 pressure ulcers)). Data for adverse events were not pooled but the types of reported adverse events included skin redness, itchy skin, dizziness and delusions, deterioration of the pressure ulcer, limb amputation and occasionally death. We downgraded the evidence to low certainty due to risk of selection and attrition bias and imprecision. ES probably increases the rate of pressure ulcer healing compared with no ES (MD 0.09% per week, 95% CI 0.049 to 0.569; I² 25%; 12 studies, 561 participants (613 pressure ulcers)). We downgraded the evidence to moderate certainty due to risk of bias. We did not find any studies that looked at quality of life, depression, or consumers' perception of treatment effectiveness. Authors' Conclusions: ES probably increases the proportion of pressure ulcers healed and the rate of pressure ulcer healing (moderate certainty evidence), but its effect on time to complete healing is uncertain compared with no ES (very low certainty evidence).
Pressure injuries/ulcers are frequent complications in elderly, paraplegic, and quadriplegic patients, which account for considerable cost to the international health care economy and remain refractory to current treatment. Future research needs to focus on large-scale trials to determine the effect of ES on all key outcomes.


When immobile or neuropathic patients are supported by beds or chairs, their soft tissues undergo deformations that can cause pressure ulcers. Current support surfaces that redistribute under-body pressures at vulnerable body sites have not succeeded in reducing pressure ulcer prevalence. Here we show that adding a supporting lateral pressure can counter-act the deformations induced by under-body pressure, and that this 'pressure equalisation' approach is a more effective way to reduce ulcer-inducing deformations than current approaches based on redistributing under-body pressure. A finite element model of the seated pelvis predicts that applying a lateral pressure to the soft tissue reduces peak von Mises stress in the deep tissue by a factor of 24 relative to a standard cushion (from 113 kPa to 47 kPa)-a greater effect than that achieved by using a more conformable cushion, which reduced von Mises stress to 75 kPa. Combining both a conformable cushion and lateral pressure reduced peak von Mises stresses to 25 kPa. The ratio of peak lateral pressure to peak under-body pressure was shown to regulate deep tissue stress better than under-body pressure alone. By optimising the magnitude and position of lateral pressure, tissue deformations can be reduced to that induced when suspended in a fluid. Our results explain the lack of efficacy in current support surfaces and suggest a new approach to designing and evaluating support surfaces: ensuring sufficient lateral pressure is applied to counter-act under-body pressure;


Pressure ulcers result in part due to ischemia reperfusion injury to the skin and present frequently in elderly or quadriplegic patients with reduced mobility. In spite of the high economic and societal cost of this condition, pressure ulcer therapy relies primarily on preventive strategies and invasive surgical intervention. A growing body of clinical literature suggests that localized injection of adipose-derived cells can accelerate and enhance the closure of pressure ulcers. The current study systematically evaluated the safety of human adipose stromal vascular fraction (SVF) cells isolated using a closed system device when injected into a murine pressure ulcer injury model. The human SVF cells were characterized by colony forming unit fibroblast and differentiation assays prior to use. Young (2 month) immunocompetent C57BL/6 mice subjected to a magnet-induced ischemia reperfusion injury were injected subcutaneously with human SVF cells at increasing doses (0.25 to 2 million cells). The size of the pressure ulcer was monitored over a 20-day period. Both female and male mice tolerated the concentration-dependent injection of the SVF cells without complications. While male mice trended towards more rapid wound closure rates in response to lower SVF cell concentrations (0.25 to 0.05 million cells), female mice responded favorably to higher SVF cell concentrations (1 to 2 million cells); however, outcomes did not reach statistical significance in either sex. Overall, the study demonstrates that human SVF cells prepared with a closed system device designed for use at point of care can be safely administered for pressure ulcer therapy in an immunocompetent host animal model;


Pressure injuries/ulcers are frequent complications in elderly, paraplegic, and quadriplegic patients, which account for considerable cost to the international health care economy and remain refractory to current treatment.
options Autologous or allogeneic adult stromal/stem cells represent an alternative therapeutic approach
The current study extends prior findings by exploring the safety and efficacy of human adipose-derived
stromal/stem cell (ASC) therapy in an established immunocompetent murine skin pressure ulcer model
where dermal fibroblast cells (DFCs) served as a control Human adipose tissue was processed using a
closed system device designed for point-of-care use in the operating room and on file with the Food and
Drug Administration Cell characterization was performed using colony-forming unit-fibroblast,
differentiation, and immunophenotypic assays in vitro Wound healing was assessed over a 20-day period
based on photomicrographs, histology, and immunohistochemistry The isolated human ASCs displayed
significantly greater colony formation relative to DFCs while both populations exhibited comparable
immunophenotype and differentiation potential Both fresh and cryopreserved human ASCs significantly
accelerated and enhanced wound healing in young (2 month) mice of both sexes relative to DFC controls
based on tissue architecture and CD68+ cell infiltration In contrast, while injection of either fresh or
cryopreserved human ASCs was safe in older mice, the fresh ASCs significantly enhanced wound closure
relative to the cryopreserved ASCs Overall, these findings support the safety and efficacy of human ASCs
isolated using a closed system device designed for clinical procedures in the future treatment of pressure
injuries;
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The article offers information on the Health care-acquired pressure injuries (HAPI) Topics include considered
pressure injury as local damage to the skin or the underlying tissue, typically over a bony prominence or
related to a medical device by the National Pressure Ulcer Advisory Panel (NPUAP); and the Medicare and
Medicaid Services (CMS) defines it as interfere with functional recovery, lead to infection, increase hospital
length of stay, and even increase the risk of death for patients
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Wound Practice & Research 27(4): 156-156
An editorial is presented in which author discusses third edition of the International Pressure Injury Guideline
developed by the European Pressure Ulcer Advisory Panel (EPUAP) Topics discussed include information
on good practice statements addressing areas significant for clinical practice in guideline; aim to work with
patients to achieve improved care outcomes; and evidence-based recommendations
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Diaz-Caro, I and S García Gómez-Heras (2020) "Incidence of hospital-acquired pressure ulcers in patients
with "minimal risk" according to the "Norton-MI" scale" Plos One 15(1): e0227052-e0227052
Introduction: Pressure ulcers (PUs) nowadays are a major health problem in society, associated with increased
morbidity and increased health care costs The incidence of HAPU is an indicator of health care quality;
Objective: To describe the profile of patients with minimal risk on the Norton-MI scale who developed PUs
during hospitalization, and to identify the incidence of hospital-acquired pressure ulcers (HAPU); Methods:
Retrospective cohort study conducted between 2014 and 2017; Study Population: Patients over 18 years
of age classified as "minimum risk" according to Norton-MI, admitted to acute hospital units of the Severo
Ochoa University Hospital-Madrid-Spain Patients were classified as patients with hospital-acquired
pressure ulcers (PWHAPU) if they developed one or more new PU during their hospitalization; Variables:
Sociodemographic variables, hospitalization units, Norton-MI score and characteristics of the risk factors of
HAPU were studied; Results: The risk of PU was evaluated in 5530 patients, being 1260 patients classified
as "minimum risk", with a median of 16 points in the Norton-MI scale The average age was 76 years old
and 525% were women Principal causes of admission: traumatological pathologies (208%) and
cardiovascular pathologies (20%) 129 HAPU were diagnosed in 112 patients, implying an incidence of
HAPU of 889% (CI95%; 744-1059) 106 PWHAPU (946%) presented up to 6 risk factors The excess
pressure and altered skin sensibility were identified as statistically significant risk factors as predictive
factors of HAPU In terms of severity, 55% of the HAPU were category I and 426% were category II, mainly
with anatomical sacro-coxygeal location In 652% of the patients the HAPU appeared in the first week of
hospitalization; Conclusion: In our study the incidence of HAPU in patients classified as minimum risk with
Norton-MI scale was 889% This elevated risk suggests for future investigations to develop new validity
studies of the Norton-MI scale and to maintain a continuo training of professionals in the knowledge of PU
risk assessment scales for their safe application in the patients, since it directs the practice of care in the prevention of PUs. It would be advisable to specially control the risk of PUs in care units, mainly in the first week of their hospital stay to minimize the HAPU incidence.


Study design: Retrospective matched cohort study Objectives: Assessing the influence of surgically managed grade 3 and 4 pressure ulcers (PU) in the acute phase after spinal cord injury (SCI) on the neurological and functional outcome after 1 year Setting: Specialized SCI-unit within a level 1 trauma center in Murnau, Germany Methods: We performed a retrospective matched cohort study For every patient with acute SCI and a PU requiring surgery, we identified matched controls within our database in a 1:3 ratio Matching criteria were: AIS-grade (American Spinal Injury Association Impairment Scale), neurological level and age The scores of the SCIM-III (Spinal Cord Independence Measure) and the ISNCSI (International Standards for Neurological Classification of Spinal Cord Injury) as well as the total length of stay (LOS) at the hospital were used as outcome parameters We applied a stratified analysis using a conditional logistic regression to test for group differences in each outcome parameter of the study Results: In a 6-year period (2010–2015) 28 patients required flap surgery due to 3–4° PU in the acute phase after SCI Of these patients, 15 had complete data sets according to the EMSCI (European Multicenter Study about Spinal Cord Injury) protocol Patients with severe PUs during the acute SCI phase had a significantly impaired functional outcome After 1 year the improvement of the SCIM score was significantly lower in the PU group compared to the control group (174 versus 305; p < 0006) However, the change in AIS grade after 1 year was not significantly affected The LOS was prolonged by a mean of 48 days in the PU group (p < 0006) Conclusions: Severe PUs requiring surgery in the acute phase after SCI impair the functional outcome and increase LOS Preventive measures should be applied to all acute SCI patients Patients should be transferred to specialized SCI-centers as soon as possible


Recently, it has been reported that topical irrigations of liquid sevoflurane on the bed of painful wounds produce a rapid, intense, and lasting analgesic effect In this paper, A cohort of 112 patients with painful pressure ulcers who were refractory to opioids (or who exhibited undesirable adverse events to them) was treated with topical sevoflurane as per local institutional policy These patients were recruited from an intensive care unit for a period of 3 years The main aim was to determine the effectiveness of topical sevoflurane in reducing the pain of PUs and reducing the ulcer area Study findings are reported and discussed herein and suggest that sevoflurane is a viable and promising treatment option for PUs


The Japanese Dermatological Association prepared guidelines focused on the treatment of skin ulcers associated with connective tissue disease/vasculitis practical in clinical settings of dermatological care Skin ulcers associated with connective tissue diseases or vasculitis occur on the background of a wide variety of diseases including, typically, systemic sclerosis but also systemic lupus erythematosus (SLE), dermatomyositis, rheumatoid arthritis (RA), various vasculitides and antiphospholipid antibody syndrome (APS) Therefore, in preparing the present guidelines, we considered diagnostic/therapeutic approaches appropriate for each of these disorders to be necessary and developed algorithms and clinical questions for systemic sclerosis, SLE, dermatomyositis, RA, vasculitis and APS; © 2020 Japanese Dermatological Association
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Kashkouli, M B, B Khademi, et al (2020) "Pressure ulcer following circumferential head dressing" Orbit (Amsterdam, Netherlands) epub ahead of print: 1-7

Purpose: To report four patients with forehead pressure ulcer (PU) following encircling head dressing and review the literature.

Methods: Uneventful endoscopic forehead lift procedure was performed with moderate skin elevation in three patients. Left upper eyelid crease incision was made to remove the sub-brow dermoid cyst uneventfully in one patient. All procedures were performed under general anesthesia. Mixed topical antibiotic and steroid ointments were placed on the incision sites before putting the encircling forehead dressing (using gauze and elastic bandage) The dressing was then removed on the first postoperative examination.

Results: Forehead and eyebrow PUs were observed on the first follow-up visit (16-72 h) after removing the dressing. Patients were otherwise healthy. They did not have significant pain or burning postoperatively. Management included pressure release, wound debridement, daily dressing, topical antibiotic and steroid, and silicone-based anti-scar cream. None had infected ulcer and all except one ended up with atrophic scar in the last follow-up (2-14 months).

Conclusion: Encircling head dressing can cause PU and result in scar formation in
healthy immunocompetent patients. If there is a low risk of postoperative hematoma, encircling dressing should be avoided. Early loosening of the dressing and frequent examination of the skin are the best preventive and diagnostic measures. Treatment includes pressure removal, daily debridement, and topical medications.

Surgical patients are at risk of developing a perioperative pressure injury (ORPI) during surgery. Accurate assessment and prompt implementation of prevention strategies or treatment of ORPI are dependent on knowledge and skills of operating room (OR) nurses. The study examined the knowledge and attitude of OR nurses in identifying at-risk patients. A cross-sectional, prospective, descriptive study was adopted. OR nurses were invited to complete the survey using the attitude towards pressure ulcer prevention instrument (Cronbach’s α of 0.79) and pressure ulcer knowledge assessment tool (Cronbach’s α of 0.77). Approximately, 28% of OR nurses took part in the survey. Most of them were females (99%) with a mean age of 384 ± 129 years. Of these, 73% of the nurses described not having adequate experience in preventing ORPI, and 88% of them were uncertain about the treatment strategies. The mean overall knowledge score was 478 ± 91%. The study demonstrated that approximately 89% of OR nurses passed with a score ≥ 60% for knowledge. The mean overall attitude score was 746 ± 61%. This cohort had 356% of these nurses gave positive scores of greater than 75% for attitudes. The knowledge scores have no relationship with the working experience, role responsibility, academic qualification, ethnicity, nationality, and gender except for age. 35 years older or equal and younger. Still, both the knowledge and attitude scores obtained have a strong relationship with the nurses’ experiences with PI prevention. Personal competency to prevent PI has a strong correlation with risk identifying and preventing PI. There are strong associations between being responsible for PI development and the knowledge on risk identification and prevention of PI. The attitude regarding the prioritisation of PI prevention is also strongly correlated to the nurses’ knowledge in preventing PI. Positive attitudes of OR nurses have no relationship with the overall knowledge scores. The prevention of ORPI is not on the list of priorities among OR nurses. The knowledge of preventive measures and risk identification of PI was limited among local OR nurses. Incorporating a standard screening and assessment tool within the current assessment list will support and promote ORPI risk assessment and continuous assessment. Contextualised education on ORPI prevention and management should be considered part of the training for OR nurses; © 2020 Medicalhelplinescom Inc and John Wiley & Sons Ltd

This article discusses an evidence- and consensus-based support-surface algorithm designed to help clinicians choose the most appropriate support surface for preventing or treating pressure injuries based on patient, nurse, and institutional considerations;

This study aimed to evaluate the sensitivity and specificity of subepidermal moisture (SEM), a biomarker employed for early detection of pressure injuries (PI), compared to the "Gold Standard" of clinical skin and tissue assessment (STA), and to characterize the timing of SEM changes relative to the diagnosis of a PI. This blinded, longitudinal, prospective clinical study enrolled 189 patients (n = 182 in intent-to-treat [ITT]) at acute and post-acute sites (9 USA, 3 UK). Data were collected from patients' heels and sacrums using a biocapacitance measurement device beginning at admission and continuing for a minimum of 6 days: (a) the patient developing a PI, (b) discharge from care, or (c) a maximum of 21 days. Standard of care clinical interventions prevailed, uninterrupted. Principal investigators oversaw the study at each site. Blinded Generalists gathered SEM data, and blinded Specialists diagnosed the presence or absence of PIs. Of the ITT population, 264% developed a PI during the study; 667% classified as Stage 1 injuries, 23% deep tissue injuries, the remaining being Stage 2 or Unstageable. Sensitivity was 875% (95% CI: 748%-953%).
and specificity was 329% (95% CI: 283%-378%) Area under the receiver operating characteristic curve (AUC) was 0.6713 (95% CI 0.5969-0.7457, P < 0.01) SEM changes were observed 47 (± 24 days) earlier than diagnosis of a PI via STA alone. Latency between the SEM biomarker and later onset of a PI, in combination with standard of care interventions administered to at-risk patients, may have confounded specificity. Aggregate SEM sensitivity and specificity and 6713% AUC exceeded that of clinical judgment alone. While acknowledging specificity limitations, these data suggest that SEM biocapacitance measures can complement STAs, facilitate earlier identification of the risk of specific anatomies developing PIs, and inform earlier anatomy-specific intervention decisions than STAs alone. Future work should include cost-consequence analyses of SEM informed interventions; © 2020 The Authors Wound Repair and Regeneration published by Wiley Periodicals, Inc on behalf of by the Wound Healing Society.


Aim: To identify the prevalence of pressure injury in patients diagnosed with traumatic brain injury and analyse the risk factors involved during hospitalization; Methods: This was a prospective study evaluating patients who were diagnosed with traumatic brain injury between November 2013 and September 2014. Patient characteristics, clinical and metabolic factors and therapeutic interventions, were evaluated within 30 days of hospital admission; Results: Most of the 240 patients included in the study were male, young, and non-Caucasian. The incidence of pressure injury was 188%. In terms of severity classification, the incidence of pressure injury was 27%, 232%, and 426% in mild, moderate, and severe traumatic brain injury, respectively. Pressure injury development was more likely in the first 10 days of hospitalization. A moderate or severe traumatic brain injury classification, the use of noradrenaline, and older age were pressure injury risk factors. The presence of pressure injury was associated with mortality within 30 days of hospitalization (P < 0.01); Conclusion: The incidence of pressure injury was high in patients diagnosed with traumatic brain injury, especially in those whose injury was classified as severe. Older age, noradrenaline use, and a classification of moderate or severe traumatic brain injury were identified as pressure injury risk factors; © 2020 The Authors International Journal of Nursing Practice published by John Wiley & Sons Australia, Ltd.


Background: Due to the prolonged use of face mask in noninvasive ventilation, pressure ulcer is a common complication. Pressure ulcer can occur within a few hours at the site where the mask contacts in 2-70% of cases; Aims: The aim of this study is to conduct a randomized controlled trial to investigate the effects of transparent film use on the duration of pressure ulcer formation in the nasal region in patients undergoing noninvasive ventilation; Methods: This study was a randomized controlled trial. 46 patients who met the sample selection criteria and agreed to participate in the study were included in the study at a university hospital in Izmir, Turkey. Of them, 25 were assigned to the intervention group and 21 to the control group. Data were collected using the Socio-demographic and Disease-related Characteristics Questionnaire, The Noninvasive Ventilation Parameters Monitoring Form, and The Pressure Ulcer Classification Form at 4-hour intervals; Results: The duration of pressure ulcer formation in intervention group was longer than that in control group, and the difference between them was statistically significant (P < 0.05); Conclusion: In this study, the use of nasal protective film (transparent film) prolonged the duration of pressure ulcer formation on the nasal bridge in patients who underwent noninvasive mechanical ventilation;
HCAs, and responses to questions asked in the sessions were analysed In addition, both of these groups completed knowledge questionnaires in order to determine further educational requirements This was followed up by a programme of education, including educational resources Nurse and HCA ‘champions’ were also recruited to aid programme implementation Finally, in order to evaluate the effectiveness of the programme, a post-programme reassessment of knowledge using the same focus group questions and knowledge questionnaires was implemented The number of facility-reported skin tears and PIIs were also recorded periodically over 16 months, from 6 months before the start of the programme to 4 months afterwards Results Retrospective and post-programme PI numbers in both facilities were low During pre-programme knowledge testing, PI numbers increased in one facility, which may be attributed to an increase in reporting In both facilities, skin tear numbers declined, and this was maintained 3 months post-programme; this was attributed to the implementation of a skin care regime The champion role, developed throughout the programme, was also seen as aiding both staff leadership and programme ownership Conclusion The establishment of an evidence-based skin and wound programme determined from staff-identified practice issues and associated learning needs can improve professionals’ knowledge and practice, and can improve resident care The two programmes were comparable in both facilities and therefore may be transferable to other RAC facilities

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Poursadra, E, M Anvari-Tafti, et al (2019) "Comparing the Effect of Henna Oil and Olive Oil on Pressure Ulcer Grade One in Intensive Care Units Patients" Advanced Biomedical Research 8: 68-68
Background: One of the most common problems in the intensive care unit (ICU) is the incidence of pressure ulcer or bedsore This research was conducted with the aim to compare the effect of henna and olive on pressure ulcer grade one in ICU patients hospitalized in the selected hospitals of Isfahan University of Medical Science in 2016; Materials and Methods: This study conducted on 108 ICU patients with pressure ulcer Patients were randomly divided into three groups The two intervention groups were treated with olive oil and henna oil, respectively, and the third group was the control group Data were collected using a demographic information questionnaire, Braden pressure ulcer risk assessment scale, and a table for daily record of the skin temperature before and within 1 week of the study Data were analyzed in SPSS 22 using independent t-test, repeated-measures ANOVA, and Fisher’s exact test; Results: The results showed a significant difference between the two henna and olive groups in the mean score of pressure ulcer measured through the pressure ulcer scale for healing tool (P < 005) The mean area of the ulcer on days 4 and 7 in the henna oil group was lower than that in the olive oil and control groups (P < 0001); Conclusion: The results of this study showed that both henna and olive oils were effective in healing the pressure ulcer However, henna oil showed better results in reducing the area of pressure ulcers over time; Copyright: © 2019 Advanced Biomedical Research

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The article offers information of influence of Spinal cord injury pattern on pressure injury Topics discussed include information on need for consideration for wheelchair seat cushion prescription; risk for developing pressure injuries (PIIs) to clients with spinal cord injury (SCI); and less muscle tissue volume beneath the ischial tuberosities (IT) in clients with SCI

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Background: Nurses certified in wound, ostomy, and continence monitored an increasing incidence of hospital-acquired pressure injury of the nares due to medical devices, specifically nasogastric tubes, in a metropolitan hospital A majority of these pressure injuries occurred in patients in the intensive care unit The organization lacked formal guidelines for preventing such injuries; Objective: To decrease the incidence of nasogastric tube-related hospital-acquired pressure injury; Methods: The organization’s process improvement model, comprising steps to define, measure, analyze, improve, and control, guided the project The incidence rate of nasogastric tube-related hospital-acquired pressure injury before the intervention was determined for calendar year 2015 and compared with data obtained after the
intervention, for calendar year 2016 An interprofessional team created, implemented, and evaluated the effectiveness of evidence-based guidelines and surveillance strategies for preventing nasogastric tube-related hospital-acquired pressure injury The team implemented guidelines using the simple mnemonic "CLEAN": correct tube position, stabilize tube, evaluate area under/near tube, alleviate pressure, note date and time; Results: The incidence rate of nasogastric tube-related hospital-acquired pressure injury (013 per 1000 patient days in 2015) decreased 100% (00 per 1000 patient days in 2016) after the guidelines were implemented in the organization This rate was sustained for a full year, after which it increased slightly because temporary and new staff lacked knowledge of the guidelines; Conclusions: The creation and implementation of clear and specific guidelines for assessing and securing nasogastric tubes successfully reduced nasogastric tube-related hospital-acquired pressure injury; ©2019 American Association of Critical-Care Nurses

Objective: To describe and explore relationships between social demographic factors and incidence or worsening of pressure ulcer scores among post-acute care (PAC) settings; Design: The authors present the incidence of new or worsening pressure ulcer ulcers stratified by self-reported patient race and sex Investigators used logistic regression modeling to examine relative risk of developing new or worsened pressure ulcers by sociodemographic status and multiple regression modeling to estimate the relative contribution of facility-level factors on rates of new or worsening pressure ulcers; Setting: Three PAC settings: long-term care hospitals, inpatient rehabilitation facilities, and skilled nursing facilities; Participants: Medicare Part A residents and patients with complete stays in PAC facilities during 2015; Main Outcome Measure: The incidence of new or worsened pressure ulcers as calculated using the specifications of the National Quality Forum-endorsed pressure ulcer quality measure #0678; Main Results: The sample included 1,566,847 resident stays in 14,822 skilled nursing facilities, 478,292 patient stays in 1,132 inpatient rehabilitation facilities, and 121,834 patient stays in 397 long-term care hospitals Significant differences in new or worsened pressure ulcer incidence rates by sociodemographic factors were found in all three settings Black race, male sex, and advanced age were significant predictors of new or worsened ulcers, although controlling for health conditions reduced the racial disparity The authors noted significant differences among facilities based on ownership type, urban/rural location, and sociodemographic makeup of facilities' residents/patients; Conclusions: There is evidence of disparities in the incidence of new or worsened pressure ulcers across PAC settings, suggesting publicly available quality data may be used to identify and ameliorate these problems;


Tavares, C, M F Domingues, et al (2019) "Wheelchair Pressure Ulcer Prevention Using FBG Based Sensing Devices" Sensors (Basel, Switzerland) 20(1)In this work, a fiber Bragg grating (FBG) based sensing system for wheelchair pressure ulcer prevention was developed Six FBGs were strategically positioned in a wheelchair to monitor the more prominent bone areas, namely scapulas (right (SR) and left (SL)), ischiatic zone (right (IR) and left (IL)), and heels (right (HR) and left (HL)) The sensing architecture was tested by a female user during pressure relief exercises, to verify its effectiveness on pressure monitoring The proposed system proves to be a compact and reliable solution for wheelchair pressure ulcer prevention, making it a suitable alternative to existing conventional electronic sensors, with the advantage of being immune to electromagnetic interferences and usable in humid environments In addition to the pressure, the breathing rate was also monitored By combining the proposed sensing architecture with a wheelchair user detection software, it is possible to create alerts for the user to know when a new position should be adopted, in order to relieve the pressure in a specific area, thus avoiding one of the biggest problems for such patients, pressure ulcers;

PURPOSE: The purpose of this study was to calculate incidence, severity, and risk factors of nasal pressure injuries due to X nasal continuous positive airway pressure (NCPAP) treatment in newborns

DESIGN: A prospective observational study

SUBJECTS AND SETTING: Newborns admitted between March 2017 and February 2018 to the neonatal intensive care unit of the First Affiliated Hospital of Xiamen University, Xiamen, China

METHODS: All newborns' noses were examined during NCPAP application. Every NCPAP-related nasal pressure injury including occurrence date, injury severity, outcomes, and pressure injury treatment methods were recorded. These data were collected twice a week by a research nurse. Nasal pressure injuries were classified using the National Pressure Ulcer Advisory Panel/European Pressure Ulcer Advisory Panel pressure injury classification system.

RESULTS: During the study period, 429 newborns received NCPAP treatment via nasal prongs. Nasal pressure injuries were observed in 149 (34.7%); 99 (66.4%) were classified as Stage 1, 48 (32.3%) were Stage 2, and 2 (1.25%) cases were classified as deep tissue injury. The risk of nasal pressure injury was significantly higher when gestational age was less than 32 weeks (odds ratio [OR], 3.278; 95% confidence interval [CI], 1.18-1177; P < 0.05) and in those who received NCPAP treatment for more than 6 days (OR, 0.026; 95% CI, 0.087-0.787; P ≤ 0.017). The mean interval between the application of NCPAP and onset of nasal pressure injury was 472 days (SD, 478; range, 0-30 days).

CONCLUSIONS: Nasal pressure injuries are a prevalent complication of NCPAP use, especially in preterm newborns. Our results identified a gestational age of less than 32 weeks and longer use of NCPAP are important factors associated with nasal pressure injuries. Methods to prevent the development of injuries such as the use of a prophylactic dressing along and replacement of binasal prongs with nasal masks are advocated.


Background: Despite decades of research, pressure injuries continue to be a source of significant pain and delayed recovery for patients and substantial quality and cost issues for hospitals. Consideration of the current thinking around pressure injury risk must be evaluated to improve risk assessments and subsequent nursing interventions aimed at reducing hospital-acquired pressure injuries.

Design: This is a discursive paper using Walker and Avant's (2005) theory synthesis framework to examine the relevance of existing pressure injury models as they align with the current literature.

Methods: PubMed and CINAHL indexes were searched, first for conceptual models and then for pressure injury research conducted on hospitalised patients for the years 2006-2016. A synthesis of the searches culminated into a new pressure injury risk model.

Conclusions: Gaps in previous models include lack of attention to the environment, contributing episode-of-care factors and the dynamic nature of pressure injury risk for patients. Through theory synthesis, the need for a new model representing the full risk for pressure injury was identified. The Pressure Injury Predictive Model is a representation of the complex and dynamic nature of pressure injury risk that builds on previous models and addresses new patient, contextual, and episode-of-care process factors associated with pressure injury development.

Relevance To Clinical Practice: Using the PIPM to determine risk can result in improved risk identification. This information can be used to implement targeted, evidence-based pressure injury prevention interventions specific to the patient risk profile, thus limiting unwarranted and unnecessary care. © 2019 John Wiley & Sons Ltd


Background: Pressure ulcers (PUs) are encountered in all types of care settings. The incidence of PUs in the intensive care unit (ICU) is higher for a variety of reasons. The Braden Scale is a widely used tool to assess the risk of PU, but its predictive power is controversial in ICU settings. In this systematic review and meta-analysis, we aimed to evaluate the predictive accuracy of the Braden Scale for measurement of risk of PU in adult ICU patients.

Methods: A comprehensive literature search in English databases (PubMed, Cochrane Library, OVID, and Web of Science), Chinese databases (SinoMed, CNKI, and Wanfang), and gray literature was performed. Studies assessing the predictive value of the Braden Scale for risk of PU in...
adult ICU patients were searched. Quality of the studies was scored with Quality Assessment of Diagnostic Accuracy Studies-2 Country, study design, setting, blinding, and characteristics of included studies were extracted; Results: Eleven full-text articles containing 10,044 patients, comprising 1,058 patients with PUs were included. The pooled sensitivity and specificity of the Braden Scale for predicting PU risk in ICU adults were 0.89 (95% CI: 0.87-0.91; I^2 94.9%; P 0.0000) and 0.28 (95% CI: 0.27-0.29; I^2 99.2%, P 0.0000), respectively. The pooled DOR was 629 (95% CI: 409-968) The overall weighted AUC was 0.7812 ± 0.0331 (95% CI: 0.7163-0.8461) and the Q* value was 0.7196 ± 0.0283 (95% CI: 0.6641-0.7751). Significant heterogeneity was noted among the included studies. Meta-regression analysis showed that there was no heterogeneity in blinding (P 0.74), study design (P 0.67), or cut-off value (P 0.821). Conclusions: This meta-analysis demonstrated that the Braden Scale had a moderate predictive validity with good sensitivity and low specificity in adult critically ill patients. Further development and modification of this tool or generation of a new tool with higher predictive power is warranted for use in ICU populations. Relevance To Clinical Practice: The first step in prevention of PU is risk assessment. In this meta-analysis, we aimed to evaluate the predictive power of the Braden Scale for assessing risk of PU in ICU adult patients, which could potentially guide clinical practice; © 2020 British Association of Critical Care Nurses


Several studies have demonstrated potential roles for apelin/APJ signaling in the regulation of oxidative stress associated with ischemia-reperfusion (I/R) injury in several organs. Objective was to assess the role of apelin/APJ signaling in the development of pressure ulcers (PUs) formation after cutaneous I/R injury in mice. We identified that cutaneous I/R injury increased the expression of apelin in the skin at I/R site. Administration of apelin significantly inhibited the formation of PUs. The reductions of blood vessels, hydrosic area, and apoptosis in I/R site were inhibited by apelin injection. Oxidative stress signals in OKD48 mice and the expressions of oxidative stress-related genes in the skin were suppressed by apelin injection. Furthermore, MM07, biased agonist of APJ, also significantly suppressed the development of PUs after cutaneous I/R, and the inhibitory effect of MM07 on PUs formation was higher than that in apelin. We conclude that apelin/APJ signaling may inhibit cutaneous I/R injury-induced PUs formation by protecting the reduction of vascularity and tissue damage via suppression of oxidative stress. Exogenous application of apelin or MM07 might have therapeutic potentials against the development of PUs;


The nursing culture in long-term care (LTC) settings may affect quality measures such as pressure injury (PrI) rates. Purpose: The study was conducted to evaluate the relevance of an LTC facility's nursing culture to both their quality measures and their staff's perceptions of care in the context of PrI prevention; Methods: Directors of Nursing (DONs) in 4 purposively selected Medicare/Medicaid-certified skilled nursing facilities were invited by phone, agreed to participate in the 5-day project, and completed an initial 7-item, facility-related survey. Their staff completed the Nursing Culture Assessment Tool (NCAT), a pen-and-paper instrument that comprises 19 items regarding 6 principal dimensions of nursing culture (behaviors, expectations, teamwork, communication, satisfaction, and professional commitment) and participated in focus groups to discuss the NCAT and its findings using standardized probes of the perception of survey salience in relation to PrI prevention practices. Staff, including registered nurses, licensed practical nurses, and certified nursing assistants employed either part- or full-time at each facility, were eligible for study participation over a 5-day period. All data collection and analyses were conducted by the authors. Facility-related data were descriptive only. Analyses of variance were used to test differences in standardized NCAT scores by facility, and focus group transcripts were coded and subjected to structured thematic content analysis; Results: One hundred, nine (109) people completed the NCAT, and 47 participated in focus groups. NCAT scores varied significantly by facility (P value range 0.001-0.027). Staff comments about their respective facility's results focused primarily on communication and teamwork and included both agreement or disagreement with the facility's high or low scores in the context of PrI prevention, as well as suggestions for instrument administration. Conclusion: Examination of nursing culture using the NCAT can provide new and targeted perspectives on how frontline workers perceive barriers and facilitators to
delivery of PrI prevention in LTC To support the evidence base regarding their values and beliefs, future research on effective workplace change in LTC settings will require nuanced assessment of the meaning and impact of the nursing culture on worker performance;

Pressure injuries represent a tremendous healthcare challenge in many nations Elderly and disabled people are the most affected by this fast growing disease Hence, an accurate diagnosis of pressure injuries is paramount for efficient treatment The characteristics of these wounds are crucial indicators for the progress of the healing While invasive methods to retrieve information are not only painful to the patients but may also increase the risk of infections, non-invasive techniques by means of imaging systems provide a better monitoring of the wound healing processes without causing any harm to the patients These systems should include an accurate segmentation of the wound, the classification of its tissue types, the metrics including the diameter, area and volume, as well as the healing evaluation Therefore, the aim of this survey is to provide the reader with an overview of imaging techniques for the analysis and monitoring of pressure injuries as an aid to their diagnosis, and proof of the efficiency of Deep Learning to overcome this problem and even outperform the previous methods In this paper, 114 out of 199 papers retrieved from 8 databases have been analyzed, including also contributions on chronic wounds and skin lesions;

Zaidi, S R H and S Sharma (2020) "Decubitus Ulcer" StatPearls epub ahead of print
Decubitus ulcers, also termed bedsores or pressure ulcers, are skin and soft tissue injuries that form as a result of constant or prolonged pressure exerted on the skin These ulcers occur at bony areas of the body such as the ischium, greater trochanter, sacrum, heel, malleolus (lateral than medial), and occiput These lesions mostly occur in people with conditions that decrease their mobility making postural change difficult Jean-Martin Charcot was a French doctor in the 19th century who studied many diseases, including decubitus ulcers He noticed that patients who developed eschar of the buttocks and sacrum died after some time He named this lesion as "decubitus ominous," which meant death was inevitable after developing this lesion[1];

Background: We aimed to systematically evaluate the efficacy of high-voltage pulsed current (HVPC) in the treatment of pressure ulcer; Methods: We searched the databases of PubMed, Cochrane Library, Elsevier and EMBASE to identify randomized controlled studies on the application of HVPC in pressure ulcer treatment, up to January 2019 Two authors independently screened the literature according to the inclusion and exclusion criteria, extracted the data and evaluated the quality RevMan 53 software was used for statistical analysis Four randomized controlled trials involving a total of 176 patients were included in the study; Results: Meta-analysis showed that the percentage of wound area reduction in the HVPC treatment group was higher than that in the control group (95%CI 2459, 4776, P<0001) Descriptive analysis showed that there was no significant difference in wound healing between the HVPC treatment group and the control group One study reported that there was contact dermatitis, and the rest of the studies reported no adverse events; Conclusion: Compared with the conventional therapy, the combination with HVPC therapy can reduce the area of pressure ulcers more effectively However, due to the small number of the studies included in this evaluation, the conclusions need to be verified by more high-quality studies;
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 assessment 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


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