Original Article

Impact of Educating the patients and attendants on prevention of pressure sores in paraplegics

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Abstract

Background: A pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear [1]. Pressure sores have been a common complication in cases of paraplegic / quadriplegic patients. The main cause is unrelieved prolonged pressure usually over bony prominences along with various intrinsic and extrinsic causes in patients with impaired sensations. Prevention of pressure sore has been the objective of educating the patient and the attendant regarding this dreaded complication. This study aims at evaluating the outcome of educating the patients and the attendees and defining their role in prevention of development of pressure sores.

Materials and methods: One hundred & fifty patients (98 males & 52 females) of traumatic and non-traumatic spinal cord injury (SCI) were enrolled from the in-patient department of Paraplegia and Rehabilitation in our institute from 2010-15. The patients were assessed for the presence of pressure ulcers and skin condition at the time of admission. The patients & their attendees, during the stay were educated for their risk of developing pressure ulcers and its prevention as per NPUAP/EPUAP (National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel) guidelines and patient teaching protocol for pressure ulcers prevention and management in a comprehendible language [2]. The patients were monitored daily and reassessed at discharge, 1, 6 and 12 months' time.

Results: The assessment was done according to quality indicators suggested by NPUAP/EPUAP guidelines in the form of point prevalence of pressure ulcers and incidence of facility acquired rate of pressure sores in hospitalized patients. It was seen that there was a statistically significant difference in the patients of both the groups with respect to development of bed sores and their prevention. The patients and attendees with higher scores on patient teaching protocol for pressure ulcers prevention and management had significantly lower incidence of developing pressure sores in comparison to patients with lower scores.

Conclusion: The need for patient and attendant education is most important for the prevention and management of Bed sores. In a country like ours where the ratio of health care providers to the number of patients availing facilities is very high, patient and attendant education on prevention & progression of pressure sores remains the key to reducing morbidity and decreasing burden for both the patient and health care system. In coherence to the same fact, our study had shown significantly low rate of development of bed sores were seen with educated attendees who could verbally reproduce the guidelines of care and prevention.

Keywords: bed sore, paraplegia, back care, posture change

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Introduction

Pressure ulcers/sores have been a point of concern as an important source of morbidity & mortality in paraplegic/quadriplegic patients. A pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear. The chief cause is a partial or complete loss of sensation due to traumatic

or non-traumatic insult to the spinal cord at any level. Many causes have been identified to predispose the patient to development of pressure sores. Of these are mainly classified into intrinsic & extrinsic causes. Extrinsic factors include interface pressure, shear forces & friction. Intrinsic factors include nutritional state of the patient, age of patient, associated comorbidities, ongoing medications, cognitive deficit & dehydration [3]. Pressure ulcers are classified into 4 stages according to clinical severity. Two more groups have been recently added as per the NPUAP (National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel) classification. These are for suspected deep tissue injury and unknown depth of involvement [1].

Prevention is better than cure. It is rather truer for pressure sore. In our country it is not only the nursing care but the education of the attendants and patients which is very important for minimizing the occurrence of pressure ulcers. This study aims at evaluating the outcome of educating the patients and the attendees and defining their role in prevention of development of pressure sores.

Material & methods

One hundred & fifty (98 males & 52 females) patients of traumatic and non-traumatic spinal cord injury were enrolled from the in-patient department of Paraplegia and Rehabilitation at our institute from 2010-15. The patients were assessed for the presence of pressure ulcers and skin condition at the time of admission. Ninety six patients were diagnosed as traumatic spinal cord injury and fifty four were categorized as non-traumatic spinal cord injury. Tuberculosis (44%) and tumor (18%) were the two most common causes of non-traumatic SCI. The patients & their attendees, during the stay were educated for their risk of developing pressure ulcers and its prevention as per NPUAP/EPUAP guidelines and patient teaching protocol for pressure ulcers prevention and management in a comprehensible language. The patients with cervical and cervico-dorsal injuries were classified as tetraplegics and those with dorsal, dorso-lumbar and lumbar spine affections were classified as paraplegics. The patients were monitored daily and reassessed at discharge, 6 and 12 months' time. Neurological examination was done as per the American Spinal Injury Association (ASIA) score [6]. No patient with a pre-existing bed sore was included in the study. Patient and attendant scores were measured by average number of successfully met outcomes. Every outcome that the patient/attendant could not verbalize/comprehend or needed further instructions was taken as null response. Outcome response was taken as successful if the patient attendees could reproduce half of the information given at the time of hospital stay.

Results

The patients were reassessed at one month, six months and 12 months the time of follow-up post discharge. There were 35 drop outs that were excluded from the study as loss to follow up. Thirteen in-patient deaths were reported of which eleven patients were earlier diagnosed cases of spine tumors & two cases were diagnosed case of spinal tuberculosis. The remaining patients and attendants were subjected to the Patient Teaching Protocol for Pressure Ulcer Prevention and Management at follow up of 1, 6 & 12 months. The mean score in the cohort was 4.8±1.3. Statistically significant difference were seen in clinical outcomes of patients with higher reproducibility (>50%) on teaching protocol as compared with those having low (<50%) reproducibility of outcomes. ($p<0.05$)

The patients with quadriparesis (low ASIA score) had significantly poor prognosis despite good patient education and good

reproducibility of patient teaching protocol for pressure ulcers prevention and management. Young patients were found to have better clinical outcomes as compared to old and frail patients with SCI with respect to pressure sores.

Discussion

The assessment & identification of risk of development of pressure ulcer is the framework to the start of preventive measures. Patients at risk include bedfast or chair fast patients due to traumatic or non-traumatic spinal cord injury (SCI). Of these comprehensive skin assessments in the form of blanching response, localized heat, edema, and induration remain important especially in patients with darkly pigmented skin. Associated bladder bowel comorbidity, poor nutritional status, increased skin moisture, increasing age, increased temperature, patients with associated poly trauma are poor prognostic factors predisposing to pressure ulcers.

The attending of the patient should be instructed for a head-to-toe assessment with particular focus on skin overlying bony prominences at regular intervals especially the sacrum, ischial tuberosity, greater trochanter and heel with every change of posture [4,5].

The patients' attendees should be educated to avoid positioning the individual on an area of erythema whenever possible & keeping the skin clean and dry with help of Talc and calamine lotion at regular intervals. Instructions to not massage or vigorously rub skin that is at risk of pressure ulcers are also vital. Cleaning of skin dry, promptly following episodes of incontinence is also an important consideration in patients with bladder co morbidities.

Education should also be imparted to consider using a skin moisturizer to hydrate dry skin in order to reduce risk of skin damage & the use of air/water beds for preventing/treating pressure sore development even post discharge should also be imparted. Due stress should be laid on importance of rehabilitation physiotherapy and proper lifting of individuals while repositioning for prevention of any folds in linen. The patient attendants were clearly instructed to not use tight under clothing.

Intrinsic causes hold as important consideration as extrinsic causes. The patient and attendees should also be instructed regarding adequate calorie intake and maintaining good hydration status. High protein diet and adequate vitamin / mineral supplementation has also proven efficacy in paraplegic patients. Maintaining positive nitrogen balance is also essential for healing of pressure ulcers.

Presence of a grade 1 ulcer is a predisposing factor for progress to next grade or for developing ulcer at other sites. In patients where instrumentation/stabilization is done, instruction for frequent sitting should be given. Reposition and turn the individual at periodic intervals, in accordance with the individual's wishes, comfort and tolerance still remains the key to prevention of pressure ulcers.

Conclusions

The present study concludes that patients and attendants who had a better comprehension / verbal remembrance scores of the outcomes as per Patient Teaching Protocol for Pressure Ulcer Prevention and Management had statistically significant difference in the incidence of developing pressure ulcers at 1 month, 6 months and 12 months follow up in comparison to patients with poor comprehension and verbal reproducibility of the score. Although the result was not similarly reproducible in tetraplegic patients. Despite good reproducibility in a few cases

there was a worse outcome, probably due to the severe nature of the injury. Young patients fared better than older ones.

Prevention of pressure sores is the key to reduction of morbidity and mortality. Patient education regarding preventive and treatment measures has a statistically significant association with low incidence/prevalence of pressure sores in para/quadriplegic patients. It was observed that attendant education regarding care was as important as the attending medical staff and reinforcement at various stages of follow up is of utmost importance.

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