

ORIGINAL ARTICLE

SPECTRUM OF PRESSURE ULCERS AT A TERTIARY CARE UNIT

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Background: Pressure ulcer is a painful comorbid condition deteriorating the physical and psychological conditions of the already chronically bedridden patients. The major purpose of this study was to assess the spectrum of pressure ulcers at Ayub Teaching Hospital, a tertiary care unit. These findings could be used to come up with recommendations to bring about a relative relief to pressure ulcers patients. **Methods:** Questionnaire based data was collected from an inpatient population who had developed pressure ulcers at Ayub Teaching Hospital, Abbottabad, over a period of nine months. The sampling technique used was non probability purposive sampling. **Results:** Out of a total of 101 patients, 56 (55.4%) were males and 45 (44.6%) were females. Age varied from 15 years to 87 years. Mean age was 57.44 SD±16.25 years. Anaemia (25.7%) was found to be the most prevalent comorbid condition. Non-Government Organizations (NGOs) support was provided to 14 (13.9%) patients. Stroke (20.8%) was the primary cause of putting the patients to bed for prolonged periods followed by spinal trauma (15.8%), heart diseases (14.9%) and malignancy (11.9%). Pressure ulcer grade-2 was most prevalent (34.7%). Length of hospital stay was less than 41 days for 30.7% of the patients, 41 to 60 days for 32.7% of the patients and 61 days or more for 32.7% of the patients. The most commonly involved site was the sacrum (40.6%). 33.7% made postural changes in less than 2 hours, 31.7% every 2 hours, 23.8% in more than 2 but less than 6 hours, 8.9% 6 hourly or more and 2% didn't make them at all. Only 16.8% of the patients used air mattresses. **Conclusion:** Rehabilitation units need to be established throughout the country. More NGOs involvement and financial assistance extension is extremely needed by the patients suffering from chronically bedridden morbidities. Nutritional monitoring with primary emphasis on anaemia and immunity boosting is need of the day for such patients.

Keywords: Pressure ulcer, Bed sores, Anaemia, Stroke,

Stud J Ayub Med Coll Abbottabad 2016;1(2):46–50

INTRODUCTION

A pressure ulcer is an injury localized to the skin and/or the tissue beneath it, the causative agent being pressure with or without shear. In most instances it involves bony prominences.¹ Pressure sores pose a great risk to bedridden patients due to prolonged illness in terms of physical as well psychological distress.² Where pressure ulcer remains an important concern in the rest of the world, Pakistan is still lagging behind as far as research and prompt treatment is concerned.³ With Pakistan's struggling economy, addressing comorbidities like pressure ulcer is a big challenge.⁴ Pressure ulcers demand a comprehensive and interventional surgical care with multidisciplinary input.^{5,6} Unfortunately such a setup is missing in Pakistan.⁷ The country is in dire need of devoted and exclusively allocated rehabilitation centres as well as a social support system firmly allegiant to the cause.⁸ Pressure sores treatment which is not given the deserved importance, greatly affects not only hospital stay duration of critical patients but also the cost and recovery.⁹ While non-pharmacological interventions like positional changes and firm surfaces still remain

controversial in the prevention of pressure sores¹⁰, the majority agreement is still upon them as to be the major measurements in preventing pressure sores. Clinicians should stratify the critically ill patients with respect to their chances of developing pressure sores.¹¹

Keeping in view this situation, a need was felt to highlight the different aspects of pressure ulcers in terms of a variety of variables like the major cause of debilitation, certain risk factors associated with it, NGO support and its physical care. This study was conducted at Ayub Teaching Hospital, Abbottabad, a tertiary care unit with a 1000 beds facility, with the aim to recommend and contribute towards pressure ulcer prevention and baseline care.

MATERIAL AND METHODS

It was a cross sectional survey that was performed in the surgical wards of Ayub Teaching Hospital. A total of one hundred and one patients were included in the study and duration of the study was 9 months from April, 2013 to December, 2013. Sampling was done through non probability purposive sampling. All chronically ill patients of age one year and above who had developed pressure ulcers were included. Outdoor patients and patients who were only

admitted for a few hours, i.e., less than 24 hours duration were excluded.

Data was collected with the help of a comprehensive questionnaire that was filled after taking informed consent from the patients or their attendants. Data was analyzed using SPSS-16. Age and other quantitative variables were expressed in terms of mean. Gender, major cause of illness, secondary conditions worsening pressure ulcers and other qualitative variables were expressed by calculating frequency and percentages. Grading of the pressure ulcer was done as per the National Pressure Ulcer Advisor Panel (NPUAP), USA.¹² Ulcers that couldn't be staged were designated as grade 5.

RESULTS

Out of a total of 101 patients, 56 (55.4%) were males and 45 (44.6%) were females. Oldest patient was 87 years old while the youngest was 15 years old. Mean age was 57.44 SD±16.25 years.

Thirty one (30.7%) patients had to spend less than forty days at the hospital while 35 (32.7%) patients each had to stay for forty one to sixty days and sixty one days and more.

Twenty-one (20.8%) patients were found to have their primary cause of debilitation as Stroke. Sixteen (15.8%) patients had spinal injury, 15 (14.9%) patients had heart diseases, 12 (11.9%) with malignancy, 7 (6.9%) head injury, post op and rheumatoid arthritis each while only 6 (5.9%) patients had joint contractures.

Seventeen (40.6 %) patients were found to have pressure sores at the sacrum, 18 (17.8%) had ulcers at gluteal region and 17 (16.8%) at occiput, 14 (13.9%) at shoulders, 6 (5.9%) at heels and only 5 (5%) patients developed pressure ulcers at elbows.

Thirty five (34.7%) patients presented with grade 2 ulcer. 24 (23.8%) with grade 1, 22 (21.8%) with grade 3, 12 (11.9%) with grade 4 and 8 (7.9%) patients presented with grade 5 pressure ulcer.

As far as the comorbid conditions having an impact on the development of pressure sores are concerned, 6 (25.7%) patients were found to have anaemia, 20 (19.8%) Diabetes Mellitus, 18 (17.8%) Smoking, 8 (7.9%) Steroid therapy, 7 (6.9%) Renal failure and 6 (5.9%) patients had peripheral vascular disease.

Postural changes were made in less than 2 hours in 34 (33.7%) patients, every 2 hours in 32 (31.7%) patients, more than 2 and in less than 6 hours in 24 (23.8%) patients, 6 hourly and more in 9 (8.9%) patients while a small number of only 2 (2%)

patients were found to be either not considering postural changes at all or were unable to do so.

Only 17 (16.8%) patients were using air mattress while the majority, i.e., 83 (83.2%) patients were using foam mattress.

A small number of 14 (13.9%) patients were getting support from Non-Government Organizations (NGOs) while the rest i.e. 86 (86.1%) patients were not getting any kind of financial or technical support from NGOs. Not a single patient was getting any special support from the Government in any form.

Fifty-three (52.5%) patients of the total sample were suffering from urinary incontinence. Forty-five (44.6%) patients were fully catheterized, 16 (15.8%) were intermittently catheterized and 40 (39.6%) patients were not catheterized at all due to unavoidable reasons.

Lastly Urinary Tract Infection (UTI) was found in 45 (45%) patients and 55 (55%) of the total sample was found to be free of it.

Table-1: Age of Patients

Age Group (Years)	Frequency	Percent	Valid Percent	Cumulative Percent
1-20	3	3.0	3.0	3.0
21-40	14	13.9	13.9	16.8
41-60	43	42.6	42.6	59.4
61 or more	41	40.6	40.6	100.0
Total	101	100.0	100.0	

Table-2: Educational status of patients

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Under Matric	58	57.4	57.4	57.4
Matric	21	20.8	20.8	78.2
Intermediate	14	13.9	13.9	92.1
Bachelors and above	8	7.9	7.9	100.0
Total	101	100.0	100.0	

Table-3: Primary cause of debilitation

Debilitation	Frequency	Percent	Valid Percent	Cumulative Percent
Stroke	21	20.8	20.8	20.8
Heart diseases	15	14.9	14.9	35.6
Joint contractures	6	5.9	5.9	41.6
Head injury	7	6.9	6.9	48.5
Spinal injury	16	15.8	15.8	64.4
Post op	7	6.9	6.9	71.3
Malignancy	12	11.9	11.9	83.2
Rheumatoid arthritis	7	6.9	6.9	90.1
Others	10	9.9	9.9	100.0
Total	101	100.0	100.0	

Table-4: Area of the body involved

Area	Frequency	Percent	Valid Percent	Cumulative Percent
Occiput	17	16.8	16.8	16.8
Shoulder	14	13.9	13.9	30.7
Buttocks	18	17.8	17.8	48.5
Heels	6	5.9	5.9	54.5
Elbow	5	5.0	5.0	59.4
Sacrum	41	40.6	40.6	100.0
Total	101	100.0	100.0	

Table-5: Grade of pressure ulcer

Grade	Frequency	Percent	Valid Percent	Cumulative Percent
1	24	23.8	23.8	23.8
2	35	34.7	34.7	58.5
3	22	21.8	21.8	80.3
4	12	11.9	11.9	92.2
5	8	7.9	7.9	100.0
Total	101	100.0	100.0	

Table-6: Secondary conditions associated with Pressure Ulcers

Secondary condition	Frequency	Percent	Valid Percent	Cumulative Percent
Anaemia	26	25.7	25.7	25.7
Diabetes Mellitus	20	19.8	19.8	45.5
Peripheral Vascular Disease	6	5.9	5.9	51.5
Stroke	2	2.0	2.0	53.5
Steroid therapy	8	7.9	7.9	61.4
Renal failure	7	6.9	6.9	68.3
Smoking	18	17.8	17.8	86.1
Drug addiction	1	1.0	1.0	87.1
Urinary incontinence	3	3.0	3.0	90.1
Stool incontinence	3	3.0	3.0	93.1
Other	7	6.9	6.9	100.0
Total	101	100.0	100.0	

Table-7: Frequency of Postural Changes

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 2 hours	34	33.7	33.7	33.7
2 hourly	32	31.7	31.7	65.3
More than and less than 6 hours	24	23.8	23.8	89.1
6 or more hours	9	8.9	8.9	98.0
No postural change	2	2.0	2.0	100.0
Total	101	100.0	100.0	

Table-8: NGO Support

NGO Support	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	14	13.9	13.9	13.9
No	87	86.1	86.1	100.0
Total	101	100.0	100.0	

Table-9: Any special support from the Government

Special Govt. Support	Frequency	Percent
Yes	0	0.00
No	101	100.0

DISCUSSION

Pressure when applied to a tissue for extended durations, can injure the skin and underlying tissue. This injury is called pressure sore. Most commonly they are found over the bony prominences.

Although females were found to develop pressure ulcers lesser than males, the results did not have a drastic difference which implies that gender alone does not have a major predictor significance in the development of pressure sores. This is in consistence with a study performed by Eberlein Gonska M.¹³

As per this study, majority of the patients were found to be of the age of more than forty years. This is in agreement with a study performed at nursing homes in 2008, according to which patients at nursing homes (old age groups) have a five times more risk of developing pressure sores as compared to the general patient population.¹⁴ However, even with this finding, it would be difficult to establish a general rule for the prevalence of pressure ulcers with respect to age demography as it is highly variable.¹⁵

The correlation of development of pressure ulcer and educational level came out to be quite striking. Very few patients with a good educational status were found to have pressure sores. On the other hand patients with a relatively lower educational status numbered quite a bit in this study. The same finding was found by Yuying Chen in 2005.¹⁶ The length of hospital stay couldn't influence much the probability of a patient to have pressure sore. However, patients having more than forty days duration of stay at the hospital surpassed those who stayed for less than forty days at the hospital. Increased hospital stay, therefore contributed to pressure ulcers. This was also proved by another study conducted in 2008 that showed that 77% of pressure sores are hospital acquired.¹⁷

Stroke was found to be the major culprit in putting the patient to bed for prolonged periods of time and subsequently developing pressure ulcers. This was also proved by a study conducted by Amir Y at an Indonesian hospital.¹⁸

Stroke was followed by spinal injury. Head injury, joint contractures, post op patients and patients suffering from Rheumatoid arthritis failed to contribute much to the pool. However, heart diseases and malignancies played a vital role in an increase in the number of patients suffering from pressure sores. These results can play the role of a

counter checker of the study already conducted which showed that pressure sores development preventive factors have to be taken into account not only during cardiac surgeries but during the entire stay of cardiac patients at the hospital.¹⁹ Besides it has already been proved that up to 85% of cancer patients can develop pressure ulcers.²⁰

Sacrum was found to be involved the most involved and elbows the least. This came out to be in accordance with the already known surveys.^{21,22}

Ulcers graded as stage 2 were found to be the most prevalent while those ulcers which presented with extensive deep damage graded as grade five (Unstageable) were the least. This in agreement with the results of a pressure ulcer prevalence survey conducted in 1997.²³

Anaemia was found to be the main contributor in the development of pressure sores. This is consistent with Bailey's study in 2011.²⁴ Different contributing factors like a relatively lower immunity status posed a major threat as these conditions lead the comorbid conditions with pressure ulcers. These findings totally agree with the results of the previously done studies.²⁵⁻²⁷

Patient postural changes were made at least in less than six hours in more than two thirds of the patients. However the impact of postural changes on pressure sores via pressure redistribution is controversial and shows the room for further research.²⁸

Majority of the patients used foam mattress instead of air mattress. This was in part because of the poor financial conditions of the patients. However, there lies very low quality evidence that switching from foam mattress to air mattress can have a substantial prognostic importance.²⁹

As far as the financial aid of the patients suffering from pressure sores is concerned, the condition is worrisome. A very small number of patients are being supported by NGOs. Pressure sores lengthen the hospital stay and hence increase the financial cost. This needs a careful thought. This result has already been proved in 1997 by Young T.³⁰

Urinary tract infections (UTIs) were found to be extremely common in patients suffering from pressure sores. The same finding was obtained in 1997 by Allman.³¹

CONCLUSION

Elderly patients are more prone to develop pressure sores. Educational status of the patients plays a major role in the development of pressure sores. The more the hospital stay, the more it becomes

likely to develop decubitus ulcers. Stroke, spinal trauma, heart diseases and malignancies are the key players in putting the patient to bed for chronic durations and therefore put them at risk of pressure sores development. Grade-2 pressure ulcer and pressure ulcers at the sacrum are particularly common.

RECOMMENDATIONS

The nutritional status of patients suffering from decubitus ulcers need to be monitored and improved in order to fight anaemia, to get an immunity booster and therefore to contribute towards reduction of the prevalence of pressure sores. In this regard smoking cessation by the patients would also have a significant impact. The frequency of postural changes is satisfactory. However there is a great need of a good number of well-equipped rehabilitation centres not only in the region in which this study has been conducted but throughout the country. In this regard NGOs and the Government should come forward to support the health care system as well as to give financial support to the patients having pressure sores. There is also a great need of aggressive urinary tract infections prophylactic therapy in pressure sores patients as co-existence of the two is fairly common.

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