

Awareness and Knowledge Regarding Pressure Ulcers in Non-Ambulatory Orthopaedic Patients among Under-Graduate Students in a Medical College

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Abstract

Original Research Article

Background: Pressure ulcer (Pressure sore or Bed sore) is a localised injury to integrity of skin and underlying tissue usually over a bony prominence resulting due to impairment of blood flow, due to mechanical stress to the tissues for prolonged period. Other important cause is the shear force, a horizontal force parallel to skin which makes the upper layer of skin to move on deeper layer [1, 2]. In Orthopaedics peri-operative patients, spinal injury patients and other non-ambulatory patients are particularly prone for pressure ulcers. Areas commonly involved are lower back, sacrum, ischial tuberosity, greater trochanter, heel and ankle. [1, 3, 4] Pressure ulcers are avoidable and represent the failure of inpatient management. The present study is aimed to evaluate awareness about prevention and treatment of pressure ulcers among under graduate medical college students. **Material and Methods:** A pre-validated questionnaire has been used to interview 148 students out of 152 students of IXth semester of a private medical college of South India. The questionnaire was structured to evaluate awareness and knowledge regarding prevention and treatment of pressure sores. **Results:** 91.21% students defined pressure ulcer as localized injury to skin and underlying tissues usually over bony prominences resulting due to prolonged pressure which occludes the blood supply to that area. 66.21% knew that most pressure ulcers can be avoided. 59.45% students knew that pressure ulcers are difficult to resolve hence, prevention is having more priority. 82.43% students were aware that pressure ulcer scar will break down faster than unwounded skin. **Conclusion:** Health care professionals must be educated to prevent and treat pressure ulcers. Students must gain knowledge of pressure ulcer prevention and treatment to provide safe patient care regarding skin integrity.

Keywords: Awareness, Knowledge, Pressure ulcer, Non-ambulatory patients, Under-graduate students.

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INTRODUCTION

Skin is the largest and most visible organ of the body. Intact skin protects from invasion of micro-organisms, helps in regulating body temperature, helps in synthesis of vitamins and gives a unique appearance to us. Still the skin is not getting its due importance as other organ systems of body like heart, kidney and lungs [5].

Almost 1.7 million patients develop pressure sores per year [6]. The estimated incidence rate of pressure ulcer in developed countries is 8.3% to 25.1% whereas it is 2.1% to 31.3% in developing countries [7-9]. It results in financial burden for patient, family, health care system and society. It increases morbidity, mortality and impairs the quality of life and demands extension of treatment and care beyond hospitalisation [10 - 12].

Prolonged pressure over skin, subcutaneous tissue, muscles and bone leads to local ischemia and necrosis resulting in pressure ulcers [12]. Excessive exposure to moisture such as sweat, urine, faeces, blood, wound discharge and pus macerates the skin, along with it the vaso-spastic effect of nicotine increases the chances of pressure ulcer [1-3].

All patients with limited mobility for prolonged period are prone for pressure ulcers. Patient's inability to move in bed, decreased consciousness, aging, poor nutrition, incontinence of urine & faeces along with diabetes further exacerbate the chances of pressure ulcers [13]. Non-ambulatory patients in Orthopaedics especially peri-operative patients and spinal injury patients in rehabilitation centres are prone for pressure sores [1, 3, 4].

Most pressure ulcers are avoidable [14]. By understanding the patho-physiology of pressure ulcers

and implementing modern preventing techniques, it is easier to prevent them rather than cure [13, 15, 16].

The present study is aimed to evaluate the awareness and knowledge regarding avoidable pressure ulcers in non-ambulatory orthopaedic patients among undergraduate students in a medical college.

MATERIALS AND METHODS

This is a cross-sectional study conducted in a medical college located in South India over a period of three months. 148 students out of 152 students of IXth semester have participated for study. Students those have not given their free and informed verbal consent after full explanation of procedure were excluded.

The study instrument consists of a semi-structured questionnaire in English having 20 elements.

It was designed to evaluate about awareness and knowledge regarding pressure ulcer in non-ambulatory orthopaedic patients. Most questions are closed ended having yes or no answers.

The questionnaire was pre-tested on five randomly chosen students to remove any ambiguity. Those students were not part of the study. Questionnaire was modified to present form after their feedback. Data was organised and entered in Microsoft excel sheet.

RESULTS

Out of 148 students, 85 students were females, and 63 students were males with female to male ratio of 1.3:1. Fig. 1 depicts the demographic characteristics

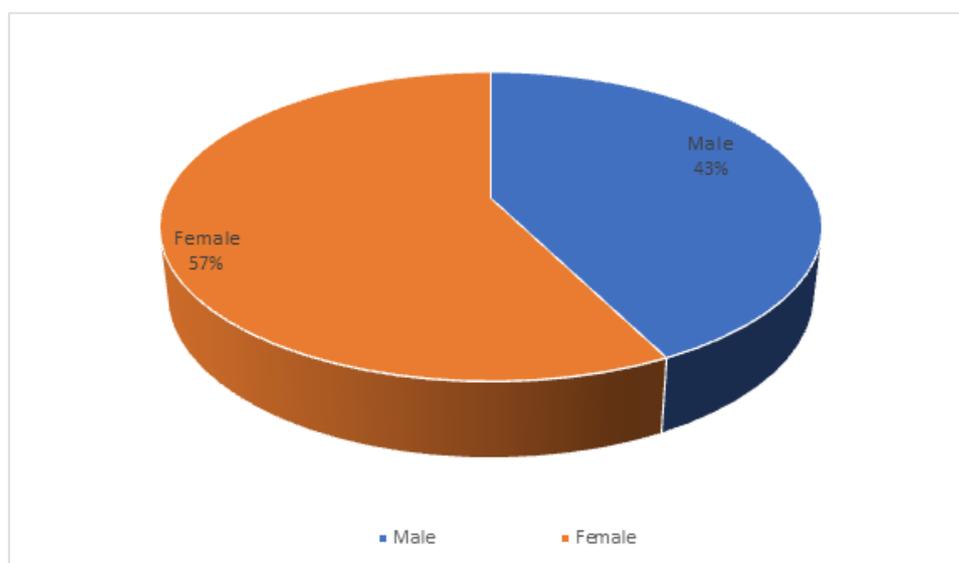


Fig-1: Demographic characteristics

135 students (91.21%) were aware that pressure ulcer is a localized injury to skin and underlying tissues usually over bony prominences results due to prolonged pressure which occludes the blood supply to that area whereas 12 students (8.10%) were not knowing about it.

Only 98 students (66.21%) knew that most pressure ulcers are avoidable. 133 students (89.86%) correctly answered that pressure ulcer risk assessment should be done in all patients throughout their stay in hospital. Fig. 2 demonstrates awareness about staging of pressure ulcers.

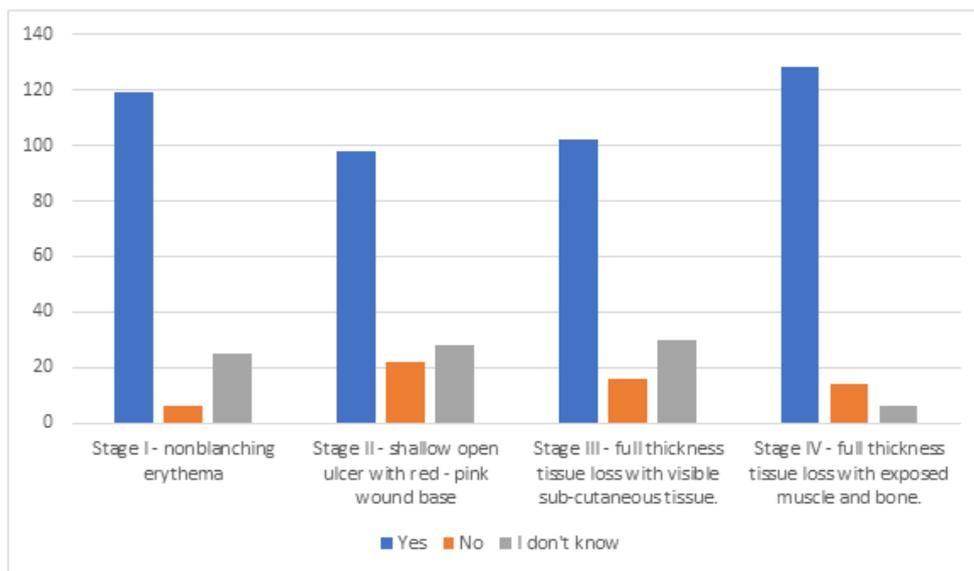


Fig-2: Awareness about staging of Pressure ulcer

127 students (85.81%) were aware of intrinsic risk factors for pressure ulcer (Limited mobility, Poor nutrition, and aging skin with comorbidities) whereas 123 students (83.10%) were aware about extrinsic risk

factors for pressure ulcer (Pressure from any hard surface, shear due to patient’s inability to move in bed and moisture). Fig. 3 demonstrates the awareness about preventive measures for pressure ulcers.

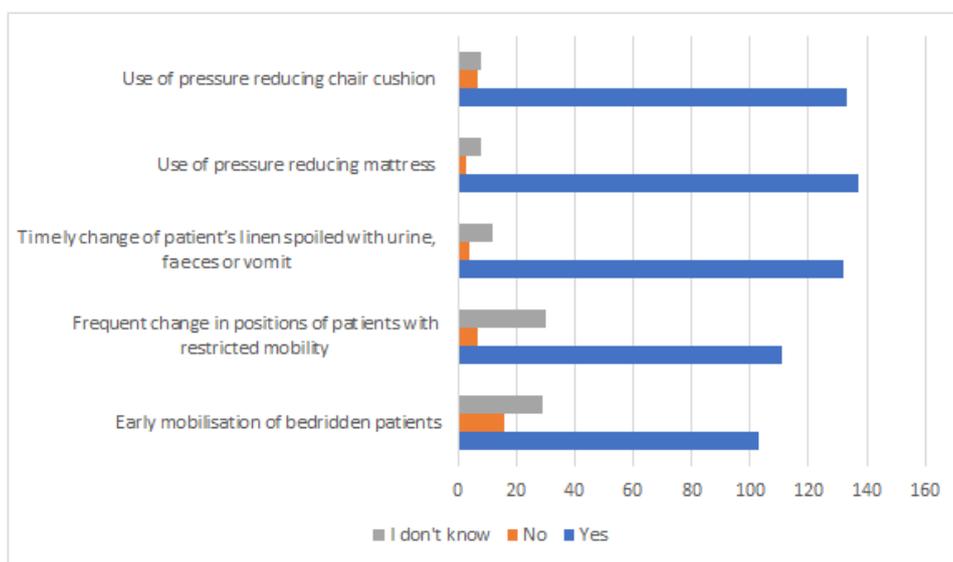


Fig-3: Awareness about preventive measures for pressure ulcer

Only 88 students (59.45%) knew that pressure ulcers are difficult to resolve hence prevention is having more priority whereas 60 students (40.54%) were unaware of this important fact.

IV ulcer is one of the treatment modalities. 107 students (72.29%) stated correctly that maintaining nutrition (taking healthy, balanced diet) and cessation of smoking are helpful for healing of pressure ulcer.

137 students (92.56%) knew that management of pressure ulcer is interdisciplinary. 133 students (89.86%) knew that relieving pressure from skin, debriding necrotic tissue, cleaning the wound, managing bacterial colonisation and selecting appropriate wound dressing are necessary for management of pressure ulcer. 87 students (58.78%) knew that surgical closure of clean stage III and stage

122 students (82.43%) knew that a pressure ulcer scar will break down faster than unwounded skin whereas 26 students (17.56%) were unaware of this fact.

DISCUSSION

There are not many researches on pressure ulcer prevention directed towards undergraduate

medical students. The low score about awareness regarding avoidable nature of pressure sore and priority for prevention of pressure sores in medical students show their novice knowledge which is a concern.

As per study of Bydgoszcz [17], knowledge of qualified person decides the quality of bed sore prevention. Fernandes [10] reported that success of pressure ulcer prevention in hospitalised patients, depends on education of health care professionals, patients and relatives.

Ulcers are difficult to treat. More than 70% of stage II ulcers heal after six months of proper treatment, only 50 % of stage III and 30% of stage IV heal within same period [19].

In the present study, students were having poor scores regarding awareness of staging of pressure ulcers. Surgical consultation should be availed in patients of clean, stage III and stage IV patients, those are not responding optimally to conservative treatment or where quality of life can be improved by rapid closure of wound [19]. Only 58.78% students knew about this fact in present study.

Considering the massive amount of evidence regarding etiology, incidence and significance of pressure ulcers, it should be priority to prevent pressure ulcers [16]. Literature clearly documented the cost effectiveness of preventing pressure ulcers rather than their treatment [20-22].

Considering the poor ratio of health care personnel to patients in India and emergence of nuclear family consisting of husband and wife and mostly both are working, the quality care to pressure sore prone non-ambulatory patients could not be given, resulting in its development. Relatives of patient must be taught properly regarding the prevention protocol especially after discharge.

The result of present study can be used to make strategies directed at preventive measures for pressure ulcers and to improve the quality of health care system in society.

Limitations

This questionnaire-based instrument can only measure the declarative knowledge and higher level of knowledge i.e. analysis, synthesis and evaluation cannot be assessed.

The sample size was small, and students were from one medical college. The study needs to be replicated with large and diverse sample size.

CONCLUSION

Under-graduate students as future health care professionals play an important role in imparting

knowledge and awareness to their patients, relatives and society to prevent pressure ulcers.

Students must be educated regarding prevention and treatment of pressure ulcers. Research activities involving students will have positive outcomes regarding pressure ulcer prevention as in clinical settings [23].

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Questionnaire

1. Pressure ulcer is a localized injury to skin and underlying tissues usually over bony prominences resulting due to prolonged pressure which occludes the blood supply to that area.
 - a. Yes
 - b. No
 - c. I don't know
2. Most pressure ulcers can be avoided.
 - a. Yes
 - b. No
 - c. I don't know
3. Pressure ulcer risk assessment should be done in all patients throughout their stay in hospital.
 - a. Yes
 - b. No
 - c. I don't know
4. Stage I pressure ulcer is defined as nonblanching erythema.
 - a. Yes
 - b. No
 - c. I don't know
5. Stage II pressure ulcer is a shallow open ulcer with red - pink wound base.
 - a. Yes
 - b. No
 - c. I don't know
6. Stage III pressure ulcer is a full thickness tissue loss with visible sub-cutaneous tissue.
 - a. Yes
 - b. No
 - c. I don't know
7. Stage IV pressure ulcer is a full thickness tissue loss with exposed muscle and bone.
 - a. Yes
 - b. No
 - c. I don't know
8. Limited mobility, Poor nutrition, aging skin with comorbidities are intrinsic risk factors for pressure ulcer.
 - a. Yes
 - b. No
 - c. I don't know
9. Pressure from any hard surface, shear due to patient's inability to move in bed and moisture are the extrinsic risk factors for pressure ulcer.
 - a. Yes
 - b. No
 - c. I don't know
10. Mobilisation of bedridden patient is a preventive measure for pressure ulcer
 - a. Yes
 - b. No
 - c. I don't know
11. Frequent change in positioning of patients with restricted mobility is a preventive measure for pressure ulcer.
 - a. Yes
 - b. No
 - c. I don't know
12. Timely change of patient's linen spoiled with urine, faeces or vomit is a preventive measure for pressure ulcer.
 - a. Yes
 - b. No
 - c. I don't know
13. Use of pressure reducing mattress in patients with risk of developing pressure sore is a preventive measure.
 - a. Yes
 - b. No
 - c. I don't know
14. Use of pressure reducing chair cushion in patients with risk of developing pressure sore is a preventive measure.
 - a. Yes
 - b. No
 - c. I don't know
15. Pressure ulcers are difficult to resolve hence, prevention is having more priority.
 - a. Yes
 - b. No
 - c. I don't know
16. The management of pressure ulcer is interdisciplinary.
 - a. Yes
 - b. No
 - c. I don't know
17. Relieving pressure from skin, debriding necrotic tissue, cleaning the wound, managing bacterial colonisation and selecting appropriate wound dressing are necessary for management of pressure ulcer.
 - a. Yes
 - b. No
 - c. I don't know
18. Surgical closure is one of the treatment modalities for clean ulcers of stage III and stage IV.
 - a. Yes
 - b. No
 - c. I don't know
19. Maintaining nutrition (Taking healthy, balanced diet) and stopping of smoking are helpful for healing of pressure ulcer.
 - a. Yes
 - b. No
 - c. I don't know
20. A pressure ulcer scar will break down faster than unwounded skin.
 - a. Yes
 - b. No
 - c. I don't know