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RESEARCH ARTICLE

TO STUDY THE DEVELOPMENT OF PRESSURE SORES IN CHRONICALLY BED RIDDEN PATIENTS IN A TERITARY CARE CENTRE : OBSERVATIONAL STUDY

Dr. Kunal Chaudhari, Dr. Neetin P. Mahajan, Dr. Kartik Pande, Dr. Ravikumar Rameshbhai Dadhaniya and Dr. Ashishkumar Jarika

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Key words:-
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Abstract

Introduction: Pressure ulcers (also known as pressure sores or bedsores) are injuries to the skin and underlying tissue, primarily caused by prolonged pressure on the skin.

Method and Material: An observatory study of 5patients with pressure sores which developed over a period of prolonged stay in wards due to extended preoperative and postoperative bed rest .

Results: Between november 2020 to april 2021, 5 patients who developed pressure sores over various sites in wards , were selected and reviewed retrospectively at Sir J.J. Group of hospitals and Grant Medical college , Mumbai, India). Different preventive methods were used to manage these pressure sores in accordance to the sores .None of the patients showed a new infection after the treatment.

Discussion: To study the various factors which contributated to development of these pressure sores and also to study the preventive measures and management of these pressure sore after classifying them according to severity and grade.

Conclusion: Pulcers continue to be a significant burden for patients and society, with the need ongoing for more effective prevention and treatment strategies and once developed require an individualized multidisciplinary approach for its management.

Introduction:-

Pressure ulcers continue to pose a major burden to the individual and society, affecting ≤3 crores adults annually in Indian alone. Despite increased preventive measures taken over the past 20 years, the prevalence of pressure ulcers has largely remained unchanged, while the associated costs of care continue to increase. Treating surgeons can play a significant role in pressure ulcer prevention by becoming aware of at-risk populations and implementing suitable preventive strategies. Moreover, treating surgeons should be able to recognize early changes that occur before skin breakdown and to properly identify and stage pressure ulcers to prevent delay of appropriate care. The aim of the discussion is to study the pathophysiology, risk factors, epidemiology, social and economic burdens, and clinical presentation of pressure ulcers.

Prevention has been a primary goal of pressure ulcer research. Despite such efforts, pressure ulcers remain common in hospitals and in the community. Moreover, pressure ulcers often become chronic wounds that are difficult to treat and that tend to recur after healing. Especially given these challenges, orthopedician should have the knowledge and skills to implement pressure ulcer prevention strategies and to effectively treat pressure ulcers in their patients who

Corresponding Author:- Dr. Kunal Chaudhari

are chronically bed ridden have prolonged limb splint with slabs and casts , prolonged immobilized fixators and splintages . This continuing medical education article focuses on pressure ulcer prevention and management, with an emphasis on the evidence for commonly accepted practices.

Methods And Material:-

A systematic review of the literature and studying the various factors which have chronically contributed to development of pressure sores .In prevention water bed or air bed is more efficient than a standard hospital mattress. An alternating pressure mattress such as a water bed or an air bed is more effective than a visco-elastic mattress limiting the occurrence heel pressure ulcers, but those that do occur are more serious. A water mattress is more efficient than air mattress in prevention of pressure ulcers. Some types of sheepskin/ amniotic patch can reduce sacral pressure ulcer incidence in orthopedic patients. Use of an overlay on an operating table limits the occurrence of peroperative and postoperative pressure ulcers. An air or fluidized bed improves pressure ulcer healing.

Results:-

Patient 1:-

Case of distal femur shaft fracture who developed a pressure sore over the lumbar region due to prolongd immobilisation. After the pressure sore was developed , serial daily dressing was done , and the wound healed after granulation tissue development from the edges . The patient was given a water bed to reduce further pressure at the wound site along with log rolling . Eventually ,Patient was sent home after the pressure sore was healed .

Patient 2:

Case of proximal tibia fracture with chronic above knee slab which resulted into heel sore which developed due to chronic pressure over the heel . . After the pressure sore was developed , serial daily dressing was done , and the wound healed after granulation tissue development from the edges . The patient was given a water bed to reduce further pressure at the wound site along with increased soft padding at the heel on the bed . Eventually, Patient was sent home after the pressure sore was healed .

Patient 3:
Case of a pressure sore which developed over the right tibia shin due to prolonged intraoperative prone position in a dorsal spine operated with posterior instrumentation and fixation done . . After the debridement , the wound healed after granulation tissue development from the edges . The patient was given a water bed to reduce further pressure at the wound site along with log rolling . Eventually ,Patient was sent home after the pressure sore was healed .

Patient 4:
Case of left femur shaft fracture who was prolonged bed ridden and developed a heel sore and macerated skin due to water glove leakage managed with skin flapping . . After the flapping , the wound healed after granulation tissue development from the edges . The patient was given a water bed to reduce further pressure at the wound site along with log rolling . Eventually ,Patient was sent home after the pressure sore was healed .

Patient 5:

Case of right femur fracture fracture with right medial malleolus fracture in a schizophrenic patient who developed a pressure sore over the dorsum of this foot . . After the pressure sore was developed , serial daily dressing was done , and the wound healed after granulation tissue development from the edges . The patient was given a water bed to reduce further pressure at the wound site along with log rolling . Eventually ,Patient was sent home after the pressure sore was healed .

Discussion:-

Once a pressure ulcer has developed, however, the goal is to heal it by optimizing regional blood flow (by use of a stent or vascular bypass surgery), managing underlying illnesses (such as diabetes, hypothyroidism or congestive heart failure) and providing adequate caloric and protein intake (whether through use of dietary supplements by mouth or by use of tube feeding). If the ulcer has become chronic, the ultimate goal changes from healing the wound to controlling symptoms (such as foul odour, pain, discomfort and infection) and preventing complications, thereby contributing to the patient's overall well-being; providing support for the patient's family is also important. Ethical and end-of-life issues must also be addressed soon after the wound has become chronic. This article discusses the pathogenesis of pressure ulcer development in the elderly in relation to concomitant diseases, risk factor assessment and the management of such ulcers.

While pressure ulcers are often a consequence of other medical conditions or generally poor health, the vast majority of pressure ulcers are avoidable.2 The prevention of pressure ulcers is therefore the goal, which is even more critical given the challenges and the high cost of treatment. Cornerstones of effective prevention strategies include the use of appropriate support surfaces, frequent repositioning, proper nutrition, and moisture management. The implementation of prevention strategies often necessitates higher upfront costs, yet evidence has shown this approach to be cost-reducing compared with standard care alternatives.3-5 If an ulcer has already developed, appropriate wound care, nonoperative treatment, and surgical management as needed should be used in addition to all preventative care measures.

JORDAN AND CLARK'S DEFINITION AND GRADING OF PRESSURE ULCERS		
GRADE 1	=	Discoloration of the skin
GRADE 2	=	Superficial ulcer
GRADE 3	=	Destruction of skin – no cavity
GRADE 4	=	Destruction of skin – cavity

A NEW CLASSIFICATION OF PRESSURE ULCERS	
GRADE 0 = POTENTIAL ULCERS	Inflammation with local heat, erythema, oedema and possible induration – more than 15mm in diameter
GRADE 1 = INCIPIENT ULCERS	Blood under the skin or in a blister, or black (necrotic) discoloration under the skin – more than 5mm in diameter; or clear blister/bullus more than 15mm in diameter
GRADE 2 = SUPERFICIAL ULCERS (OPEN)	A break in the skin (epidermis) that may include some damage to dermis, but without black discolouration – more than 5mm in diameter
GRADE 3 = MEDIUM ULCERS (OPEN)	Destruction of the skin (epidermis and dermis) without an obvious cavity, but possibly with black discolouration (possibly a slough) – more than 5mm in diameter
GRADE 4 = DEEP ULCERS (OPEN)	Penetration of the skin (epidermis and dermis) with a clearly visible cavity (with or without necrotic tissue) – more than 5mm indiameter at the surface
GRADE 5 = SINUS/BURSAL ULCERS	Necrotic, possibly infected, and possibly suppurating ulcer – more than 40mm in diameter overall, but with either no skin opening or one less than 15mm in diameter

Preventive measures : Key points
1) Pressure redistribution is the cornerstone of pressure ulcer prevention
2) Frequent repositioning, low angle of bed incline, and optimal patient positioning can reduce the incidence of pressure ulcers

Support surfaces : Key points
1) Specialized support surfaces, including mattresses and overlays, are designed to reduce pressure and minimize shear .
2) Constant low-pressure and alternating pressure supports reduce the incidence of pressure ulcers compared with standard mattresses .
3) In addition to reducing the duration of pressure via frequent repositioning, minimizing pressure magnitude is essential. A variety of support surfaces, including specialized beds, mattresses, mattress overlays, and cushions, are available that aim to reduce pressure and minimize shear.

Nutrition : Key points
1) Nutritional deficiencies may promote skin breakdown.
2) Malnutrition is best diagnosed with tools that incorporate a patient history and physical examination.

Dressings : Key points
1) Prophylactic dressings can reduce the effects of friction and shear .
2) Dressings can also protect intact skin from maceration.
3) Dressings, including films, hydrocolloids, and foams, have been used prophylactically to prevent skin damage.

Management : Key point
Principal elements of pressure ulcer prevention, including repositioning, the use of specialized support surfaces, and adequate nutrition, are also applicable to pressure ulcer management . The management of pressure sores consists of all the elements of pressure sore prevention, including the use of pressure-reducing support surfaces such as water bed , air mattresses , gamgee padding, repositioning, log rolling and adequate nutrition. Additional treatment specific interventions targeted at optimizing wound healing include off-loading, basic wound care fundamentals, and various other nonsurgical and surgical management options .

Pressure off-loading : Key point
1) Continuous off-loading of pressure from the site of ulceration is essential to healing .
2) Off-loading of pressure from the ulcer reverses the primary underlying etiology and is the most essential component of treatment. Pressure reduction is aided by the use of pressure-reducing support surfaces and frequent repositioning such as 2 hourly log rolling which may be very effectively managed by explaining the caretaker of the patient or the nurse . Caution should be taken not only to relieve pressure from the site of ulceration / sore but also to avoid causation of new pressure ulcers at other sites because of a singular focus on off-loading a particular site.

Incase due to unforseenable circumstances and dispite all the preventive measures being taken a wound does develop then care is taken to keep the wound clean and prevent secondary infection from developing and also freezing the developmental progression of the pressure wound .

Wound Care Fundamentals :
1) Cleansing and debridement .
2) Saline or tap water are appropriate for wound cleansing .
3) Sharp debridement efficiently removes necrotic tissue and slough, reduces the bacterial burden, and helps eliminate phenotypically altered cells that impair healing .

Nonsurgical Management :
Topical agents : Key point
Topicals agents that contain growth factors may be considered for pressure ulcers that do not respond to other treatments.

Surgical Management :
Key point
Skin flaps with or without muscle transfer are the principal surgical method of wound closure for pressure ulcers .

Conclusion:-

All 5 patients included under this study developed pressure sores as a result of prolonged immobilsation in wards and improper care in repositioning .pressure ulcers continue to be a significant burden for patients and society, with the need ongoing for more effective prevention and treatment strategies. After early assessment of these pressure sores , the sores were quickly managed in an individualized manner specific to the type of the pressure sore , resulting in to good outcome . High-quality studies comparing many of the available interventions are still needed. Regardless of the specific intervention, however, pressure ulcers undoubtedly require a multifaceted approach that optimizes pressure relief, nutrition status, and proper wound care, as well as nonsurgical and surgical treatments as needed.

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