PHARMACOTHERAPEUTIC MANAGEMENT OF PRESSURE WOUND IN SUSHMA KOIRALA MEMORIAL HOSPITAL

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ABSTRACT

Background: Pressure ulcers are the serious kinds of wounds that get developed within the skin tissues. They affect larger surface areas of the body resulting severe pain in the infected body parts of the patients. Pressure wound, thus has been presented as one of the major health problem worldwide. This study was aimed to find out different aspects of pressure ulcer cases and outcomes in Sushma Koirala Memorial Hospital (SKMH). Along with this, the study was targeted to study major affected body part, role of diet in healing wounds, grades of pressure ulcers and medicines used during the management and treatment of such chronic wounds.

Methods: A descriptive, unicentric, retrospective study was conducted in 2018 at Sushma Koirala Memorial Hospital. A total of 163 patient records from October 2016 to October 2018 were reviewed. The data was entered in SPSS 16 version for analysis.

Results: Pressure ulcers were common among people from the age group 21-40 years. The males were more vulnerable than female. Most people stayed for 41-60 days while the most affected body part in many patients was the sacral region. Third grade sacral region pressure wound was mostly found in the admitted patients. Wounds and injuries were common cause for development of pressure ulcers. The usage of third generation cephalosporin- ceftriaxone was predominantly found during surgery as well as post-surgery. During surgery, most commonly used medications include fentanyl, paracetamol, midazolam and propofol. After surgery, analgesics like ketorolac, combination of ibuprofen and paracetamol were frequently used. For post-surgical condition, ceftriaxone, ascorbic acid, ranitidine and pantoprazole were mostly used. Patients with pressure ulcers were advised to take high protein diet.

Conclusion: This study showed sacral region was most affected body part and grade 3 pressure wound were predominant in most of the admitted patients. Ceftriaxone was mostly prescribed antibiotics and combination of paracetamol and ibuprofen was mostly prescribed for analgesic effects.

Keywords: *Pressure ulcers, Sacral region, Ceftriaxone, Fentanyl, Paracetamol, Ibuprofen*

INTRODUCTION

Skin ulcerations due to pressure and shear are frequently referred to as decubitus ulcers, bed sores, pressure ulcers, and pressure sores. Pressure ulcers are the most appropriate term, which denotes the principle etiologic factor that results in the sloughing of necrotic tissue, causing ulceration[1]. Pressure ulcers are a type of injury that breaks down the skin and underlying tissue when an area of skin is placed under constant pressure for certain period causing tissue ischemia, cessation of nutrition and oxygen supply to the tissues and eventually tissue necrosis. Constant pressure resulting in 'distortion or deformation damage' is probably the most accurate description of a pressure ulcer. There is a localized, acute ischemic damage to any tissue caused by the application of external force (either shear, compression or a combination of the two) [2].

- Grade 1 A grade one pressure ulcer is the most superficial type of ulcer. The affected area of skin appears discolored and is red in white people, and purple or blue in people with darker colored skin. One important thing to remember is that Grade 1 pressure ulcers do not turn white when pressure is placed on them. The skin remains intact, but it may hurt or itch. It may also feel either warm and spongy or hard.
- Grade 2 In Grade 2 pressure ulcers, some of the outer surface of the skin (the epidermis) or the deeper layer of skin (the dermis) is damaged, leading to skin loss. The ulcer looks like an open wound or a blister.
- Grade 3 In Grade 3 pressure ulcers, skin loss occurs throughout the entire thickness of the skin. The underlying tissue is also damaged, but the underlying muscle and bone are not damaged. The ulcer appears as a deep cavity like wound.
- Grade 4 A Grade 4 pressure ulcers is the most severe type of pressure ulcer. The skin is severely damaged, and the surrounding tissue begins to die (tissue necrosis). The underlying muscles, bone or joint may also be damaged, sometimes very severely.

A pressure ulcer is defined by the European Pressure Ulcer Advisory Panel as an area of localized damage to the skin and underlying tissue caused by pressure, shear, or friction, or a combination of these. Pressure ulcers are caused by a local breakdown of soft tissue as a result of compression between a bony prominence and an external surface. They usually develop on the lower half of the body: two thirds around the pelvis and a third on the lower limbs, with heel ulceration becoming more common. Elderly people are the most likely group to have pressure ulcers; this is especially true for those older than 70, up to a third of whom will have had surgery for a hip fracture. Those with spinal injuries formed another distinct group, in whom the prevalence is 20%-30% one to five years after injury. Most pressure ulcers arise in hospital, where the prevalence among inpatients is 3%-14%, although it can be as high as 70% in elderly in patients with orthopedic problems[3].

Pressure ulcers also called pressure wounds is one of the major health issues in the recent years. The development of wounds or injuries to higher extent causes deep tissue wound taking longer period to heal along with intolerable pain until it becomes completely healed. Even the minor trauma can be developed to form a pressure sore which has to be emphasized. Therefore, findings and observations are required for the knowledge of such wounds.

Although pressure ulcer is one of the major topics in health aspect, very few researches are done. The overall knowledge about the factors, grades, severity and medication usage for

pressure ulcer is still not enlightened. The objective of this study was to focus specially on these aspects of pressure ulcer in patients. The purpose of this study was to find the demographic characteristics of patients, identify the body parts mostly affected by pressure ulcers, to evaluate cause and severity of the developed pressure ulcer, to access dietary habits of the patients and to study about the medications used for treatment of patients suffering from pressure ulcers.

MATERIALS AND METHODS

Design of the study: **A** retrospective, unicentric and descriptive study

Type of study: Both Qualitative and Quantitative study

Research Study Site: Sushma Koirala Memorial Hospital, Sankhu.

Study Population: Patient attending at Sushma Koirala Memorial Hospital with pressure ulcers.

Study variables:

Dependent variables: Patient diagnosed with pressure wound.

Independent variables: Demographic (age-group, gender,), Grade of pressure wound and Outcome.

Study duration: 3 months

Sampling method and sampling size

Sampling method: Purposive sampling

Sample size: 163 patients diagnosed with pressure wound admitted in SKMH from October 2016 to October 2018

Inclusion criteria

Patient diagnosed with pressure wound admitted in SKMH from October 2016 to October 2018.

Exclusion criteria

Cases with bed sores

3.4 Data Collection Instrument

The data collection form (Appendix) was approved by supervisor. Required information was noted from the cardex report of patients, such as: age, gender, address, duration, grade of pressure wound, diet and main drugs used in the management.

Validity and reliability of the study: The research work was performed under the direct supervision of assigned supervisor.

Statistical data analysis

All the data collected from the hospital was coded as per variables and data entry was done in SPSS data sheet and analyzed by the help of statistical software SPSS 16. Data were analyzed as per objectives of the study. The analyzed data was expressed in percentages and frequencies. Microsoft excel, Microsoft word were used.

Ethical Consideration

The ethical approval was taken from the Institution Review Committee (IRC) of MMIHS. Permission was requested and granted from General Director of SKMH to carry out the study.

RESULTS

Table 1: Age distribution of patients

Age group (years)	Frequency	Percent
0-20	29	17.79
21-40	86	52.76
41-60	40	24.73
61-80	8	4.9
Total	163	100

Table 1 shows: Maximum number of patients was from age group 21-40 years (86; 52.76%).

Table 2: Gender distribution of patients

Gender	Frequency	Percent
Male	119	73
Female	44	27
Total	163	100

Table2 shows: Maximum number of patients was found to be male.

Table 3: Affected body parts of patients

Body part	Frequency	Percent
Sacral region	60	36.8
Sacral, trochanteric	32	19.63
Ischiatic region	17	10.44
Trochanteric region	15	9.2
Sacral, trochanteric, ischiatic	4	2.45
Trochanteric, ischiatic	4	2.45
Sacral, heel	4	2.45
Sacral, iliac	3	1.84
Sacral, trochanteric, heels	2	1.24
Trochanteric, heels	2	1.24

Trochanteric, buttocks	2	1.24
Buttocks	2	1.24
Gluteal region	2	1.24
Groin	1	0.61
Ischiatic, gluteal	1	0.61
Sacral, elbow	1	0.61
Sacral, ischiatic, heels, iliac	1	0.61
Sacral, trochanteric, ischiatic, knee	1	0.61
Gluteal, groin	1	0.61
Sacral, ischiatic, heels, knee	1	0.61
Sacral, trochanteric, ischiatic, iliac	1	0.61
Sacral, ischiatic, iliac, groin	1	0.61
Buttocks, gluteal	1	0.61
Ischiatic, foot	1	0.61
Sacral, trochanteric, heels, iliac	1	0.61
Coccygeal region	1	0.61
Foot	1	0.61
Total	163	100

Table 3 shows: Maximum number of patients had pressure wound in sacral region (60, 36.8%). Other body part where most pressure wound was found was sacral and trochanteric region (32, 19.63%), ischiatic region (17, 10.44) and trochanteric region (15, 9.20%).

Table 4: Diagnosis of patients

Diagnosis	Frequency	Percent
Sacral pressure sore	42	25.77
Multiple pressure sore	22	13.52
Sacral and trochanteric pressure wound	20	12.28
Trochanteric pressure sore	14	8.6
Ischiatic pressure wound	12	7.38
Sacral pressure sore with spinal cord injury	10	6.14
Trochanteric and ischiatic pressure wound	3	1.84
Gluteal and groin pressure wound	3	1.84
Ischiatic pressure wound with spinal cord injury	3	1.84

Buttock pressure wound	3	1.84
Sacral and iliac pressure wound	2	1.23
Trochanteric and heel pressure wound	2	1.23
Sacral and heel pressure wound	2	1.23
Sacral and trochanteric pressure wound with spinal cord injury	2	1.23
Sacral pressure wound with DM with opoid poisoning	1	0.61
Ischiatic pressure wound with DM	1	0.61
Sacral pressure sore with depression	1	0.61
Sacral and elbow pressure wound	1	0.61
Sacral pressure wound with pott's spine	1	0.61
Sacral pressure wound with polytrauma	1	0.61
Sacral and knee pressure sore with depression	1	0.61
Groin pressure wound	1	0.61
Sacral pressure sore with neurogenic blood and bladder dysfunction	1	0.61
Sacral pressure sore with calcancal fracture	1	0.61
Reoccurrence of ischiatic pressure wound	1	0.61
Sacral and trochanteric pressure wound with cerebral atrophy	1	0.61
Trochanteric pressure wound with Htn+DM+chronic pancreatitis	1	0.61
Foot pressure wound	1	0.61
Sacral and trochanteric pressure wound with meningoencephalitis	1	0.61
Sacral and trochanteric pressure wound with spinal cord injury and necrotic tissue	1	0.61
Sacral pressure wound with malnourishment	1	0.61
Buttock and trochanteric pressure wound	1	0.61
Sacral pressure wound with RHD and MS	1	0.61
Ischiatic pressure wound with spinal cord injury with DM	1	0.61
Coccygeal pressure wound	1	0.61
Sacral and trochanteric pressure sore with Htn and DM	1	0.61
Sacral and trochanteric pressure wound with DVT	1	0.61

Total	163	100

Table 5: Grade of pressure wound in patients

Grade of pressure wound	Frequency	Percent
3	66	40.49
2 and 3	30	18.41
2	19	11.66
4	18	11.04
3 and 4	13	7.98
1 and 3	5	3.07
1 and 2	4	2.45
1,2 and 3	4	2.45
2 and 4	2	1.23
1 and 4	1	0.61
2,3 and 4	1	0.61
Total	**163**	**100.0**

Table 5 shows: Maximum patients had Grade 3 pressure wound (40.49%), followed by Grade 2 and 3, here mentioned as 5 (18.41%).

Table 6: Cause distribution in patients

Cause	Frequency	Percent
Wound/ injury	60	36.81
Fall injury from height	47	28.84
Fall injury, wound	23	14.11
Road Traffic Accident(RTA)	22	13.5
Earthquake or physical assault	4	2.45
Bed ridden	2	1.23
Fall from bike, wound	2	1.23
Fall from height, RTA, wound	1	0.61
Fall from bike	1	0.61
Earthquake, wound	1	0.61
Total	163	100

Table 6 shows: Maximum patients had pressure ulcer due to wound/injury (60, 36.81%) followed by fall injury from height (47, 28.84%), fall injury and wound (23, 14.11%) and RTA (22, 13.50%).

Table 7: Paraplegia of patients

Paraplegia	**Frequency**	**Percent**
No	93	57.05
Yes	70	42.95
Total	163	100.0

Table 7 shows: 42.95% of the patient having pressure wound was paraplegic whereas 57.05% of the patients had no paraplegia.

Table 8: Diet distribution of patients

Diet	Frequency	Percent
High protein diet	68	41.72
High protein, sampro	29	17.79
Normal diet	26	15.95
High protein, hiowana	21	12.88
High protein, provit	15	9.21
High protein, normal, hiowana	3	1.84
High protein, sampro, hiowana	1	0.61
Total	163	100

Table 8 shows: Maximum patient had high protein diet (68, 41.72%) followed by high protein diet with sampro powder (29, 17.79%) and then normal diet (26, 15.95%).

Table 9: Duration of stay of patients

Duration days	Frequency	Percent
21-40	47	28.83
41-60	25	15.34
1-20	24	14.72
61-80	13	7.97
141-160	12	7.37
81-100	11	6.75
121-140	9	5.53
101-120	7	4.29

161-180	5	3.07
181-200	5	3.07
201-220	1	0.61
221-240	1	0.61
261-280	1	0.61
281-300	1	0.61
300+	1	0.61
Total	163	100

Table 9 shows: Maximum patients stayed for 21-40 days (28.83%), 41-60 days (15.34%) and 1-20 days (14.72**%).**

Table 10: Body part affected vs. age group of the patients

Body parts	0-20	21-40	41-60	61-80	Total
Sacral region	10	34	14	2	60
Sacral, trochanteric	5	15	10	2	32
Ischiatic region	3	11	3	0	17
Trochanteric region	3	8	2	2	15
Sacral, trochanteric, ischiatic	0	2	2	0	4
Trochanteric, ischiatic	1	1	2	0	4
Sacral, heel	0	3	1	0	4
Sacral, iliac	2	0	0	1	3
Sacral, trochanteric, heels	0	1	1	0	2
Trochanteric, heels	0	1	1	0	2
Trochanteric, buttocks	1	1	0	0	2
Buttocks	0	1	0	1	2
Gluteal region	0	2	0	0	2
Groin	1	0	0	0	1
Ischiatic, gluteal	0	0	1	0	1
Sacral, elbow	0	0	1	0	1
Sacral, ischiatic, heels, iliac	0	1	0	0	1
Sacral, trochanteric, ischiatic, knee	0	0	1	0	1
Gluteal, groin	0	1	0	0	1

Sacral, ischiatic, heels, knee	0	1	0	0	1
Sacral, trochanteric, ischiatic, iliac	1	0	0	0	1
Sacral, ischiatic, iliac, groin	0	1	0	0	1
Buttocks, gluteal	0	1	0	0	1
Ischiatic, foot	1	0	0	0	1
Sacral, trochanteric, heels, iliac	0	0	1	0	1
Coccygeal region	1	0	0	0	1
Foot	0	1	0	0	1
Total	29	86	40	8	163

Table 11: Body parts vs. gender of the patients

Body Parts	Male	Female	Total
Sacral region	41	19	60
Sacral, trochanteric	26	6	32
Ischiatic region	13	4	17
Trochanteric region	12	3	15
Sacral, trochanteric, ischiatic	4	0	4
Trochanteric, ischiatic	4	0	4
Sacral, heel	3	1	4
Sacral, iliac	2	1	3
Sacral, trochanteric, heels	1	1	2
Trochanteric, heels	1	1	2
Trochanteric, buttocks	1	1	2
Buttocks	0	2	2
Gluteal region	1	1	2
Groin	0	1	1
Ischiatic, gluteal	1	0	1
Sacral, elbow	1	0	1
Sacral, ischiatic, heels, iliac	1	0	1
Sacral, trochanteric, ischiatic, knee	1	0	1

Gluteal, groin	0	1	1
Sacral, ischiatic, heels, knee	1	0	1
Sacral, trochanteric, ischiatic, iliac	1	0	1
Sacral, ischiatic, iliac, groin	1	0	1
Buttocks, gluteal	1	0	1
Ischiatic, foot	0	1	1
Sacral, trochanteric, heels, iliac	1	0	1
Coccygeal region	0	1	1
Foot	1	0	1
Total	119	44	163

Table 12: Gender vs. paraplegic condition of the patients

Gender	Paraplegia		Total
	Yes	No	
Male	50	69	119
Female	20	24	44
Total	70	93	163

Table 13: Diet vs. Gender of the patients

Diet	Male	Female	Total
High protein diet	53	15	68
High protein, sampro	21	8	29
Normal diet	15	11	26
High protein, hiowana	19	2	21
High protein, provit	8	7	15
High protein, normal, Hiowana	2	1	3
High protein, sampro, Hiowana	1	0	1
Total	119	44	163

Table 14: Cause vs. age group of the patients

Causes	0-20	21-40	41-60	61-80	Total
Wound/ injury	13	33	9	5	60

Fall injury from height	7	22	18	0	47
Fall injury, wound	3	11	7	2	23
Road Traffic Accident (RTA)	3	16	3	0	22
Earthquake or physical Assault	0	2	2	0	4
Bed ridden	1	0	0	1	2
Fall from bike, wound	1	0	1	0	2
Fall from height, RTA, Wound	1	0	0	0	1
Fall from bike	0	1	0	0	1
Earthquake, wound	0	1	0	0	1
Total	29	86	40	8	163

Medication usage

Medications used during surgery

		Frequency	Percent
A)	Antibacterial drugs		
	Ceftriaxone	109	66.87
	Amoxicillin+ Cloxacillin	21	13
	Ciprofloxacin	2	1.22
B)	Anticholinergic	Frequency	Percent
	Atropine	9	5.52
C)	Benzodiazepine		
	Midazolam	96	58.89
D)	Opoid Analgesics		
	Fentanyl	77	47.23
	Tramadol	18	11.04
	Pethidine	11	6.74
E)	Antiemetic		
	Ondansetron	10	6.13

F)	Non opoid analgesics		
	Paracetamol	13	8
	Ketorolac	10	6.13
G)	General Anesthetics		
	Propofol	49	30.06
	Ketamine	18	11.04
	Isoflurane	5	3.06
H)	Muscle Relaxant		
	Rocuronium	11	6.74
I)	Antihistamincs		
	Phenaramine maleate	8	4.9
J)	Cardiac System drugs		
	Mephentermin (Sympathomimetic)	24	14.72
	Clonidine	8	4.9
	Furosemide (Loop Diuretic)	2	1.22
K)	H2 Receptor Antagonist		
	Ranitidine	5	3.06

Drugs used after surgery

	Frequency(percent)	Quinolone	Frequency (percent)
A) Antibacterial Drugs Penicillin			
Flucloxacillin	7(4.29)	Ciprofloxacin	24(14.72)
Cloxacillin	5(3.06)	Ofloxacin	18(11.04)
Meropenem	1(0.61)		
Total	13(7.96)	Total	42(25.76)
Macrolides	Frequency(percent)	Cephalosporin	Frequency (percent)
Azithromycin	1(0.61)	Cefixime	12(7.36)
Clindamycin	1(0.61)	Ceftriaxone	35(21.47)
Total	2(1.22)	Total	47(28.83)

		Frequency	Percent
B)	Anti-infective		
	Metronidazole	25	15.33
	Albendazole	10	6.13
	Nitrofurantoin	6	3.68
C)	Antidiabetic		
	Metformin	6	3.68
	Glimepiride	4	2.45
	Sitagliptin	1	0.61
	Insulin	1	0.61
	Acarbose	1	0.61
D)	Anticoagulant		
	Warfarin sodium	5	3.06
E)	Antiemetic	Frequency	Percent
	Ondansetron	13	7.97
	Metoclopramide Hcl	7	4.29
F)	CNS drugs		
	Gabapentin	27	16.56
	Pregabalin	15	9.20
	Phenytoin	4	2.45
G)	Cardiovascular system drugs		
	Amlodipine	5	3.06
	Atorvastatin	5	3.06
	Hydrochlorothiazide	1	0.61
	Atenolol	1	0.61
H)	NSAIDS		
	Ibuprofen+ Paracetamol	101	61.96
	Acetaminophen	68	41.71
	Aspirin	5	3.06

	Diclofenac	4	2.45
	Aceclofenac	2	1.22
I)	Muscle relaxant		
	Baclofen	62	38.03

J) Drugs for GI system

PPIs	Frequency (percent)	H2 antagonist	Frequency (percent)
Pantoprazole	45 (27.60)	Ranitidine	84 (51.53)
Omeprazole	11 (6.74)		
Esomeprazole	10 (6.13)		
Rabeprazole	8 (4.91)		
Total	74(45.38)	Total	84(51.53)
Anticholinergics	Frequency (percent)	Osmotic purgatives	Frequency (percent)
Hyoscine butyl bromide	9 (5.52)	Lactulose	19 (11.65)
Oxybutynin	1 (0.61)		
Total	10(6.13)	Total	19(11.65)
Motility stimulant	Frequency (percent)	Stimulant purgative	Frequency (percent)
Domperidone	1 (0.61)	Biscodyl	1 (0.61)

K) Analgesics & antipyretic	Frequency(percent)		Frequency (percent)
Ketorolac tromethamine	23(14.11)	Paracetamol+ codeine	3(1.84)
Tramadol HCL	13(7.97)	Paracetamol+ tramadol	4(2.45)
Pethidine	2(1.22)	Total	45(27.60)

L)	Sedative hypnotic (benzodiazepines)	Frequency	Percent
	Clonazepam	8	4.91
	Alprazolam	5	3.06
	Lorazepam	5	3.06

M)	Antidepressant	Frequency	Percent
	Amitriptyline HCl (tricyclic)	15	9.20
	Escitalopram (SSRIs)	7	4.29
	Duloxetine (SNRI)	4	2.45
	Fluoxetine (SSRI)	2	1.22
N)	Steroid		
	Dexamethasone	1	0.61
	Prednisolone	1	0.61
O)	Antihistamincs		
	Phenaramine maleate(sedative)	4	2.45
	Fexofenadine (non- sedative)	2	1.22
	Cetirizine(non- sedative)	2	1.22
	Promethazine (sedative)	**1**	**0.61**
P)	Drug for vitamin Mineral & nutritional deficiency disorder		
	Ascorbic acid	129	79.14
	Vitamin B	28	17.17
	Iromin	27	16.56
	Iron+ folic acid	18	11.04
	Methylcobalamine	17	10.42
	Calcium	14	8.58
	Zinc	8	4.9
	Iron	4	2.45
	Citric acid +Potassium citrate	3	1.84
	Calcium carbonate	1	0.61
Q)	Expectorant		
	Dexomethorphan+ Chlorphenaramine	4	2.45
R)	Antimotility		
	Loperamide	1	0.61
S)	Antifungal		
	Terbinafine	1	0.61
T)	Anti- Parkinson		
	Carbidopa+ Levodopa	1	0.61

U)	Antitubercular		
	Rifampicin	2	1.22
	Isoniazid+ Rifampicin+ Pyrazinamide+ Ethambutol	1	0.61
V)	Antiviral		
	Acyclovir	1	0.61

DISCUSSION

This study showed most patients belonged to age group of 21-40 years (52.76%). Similar study done by Pirko Maguina and Holly Kirkland-Walsh showed mean age of 47 years. Male patients were more in number in our study (119 males and 44 females). In the study done by Pirko Maguina and Holly Kirkland-Walsh 14 patients were men and 9 were women out of 23 patients whereas in the study conducted by Eithne Keelaghan et.al showed females were more (61%) than male patients. The patients mainly had the stay duration between 21-40 days (28.83%) in our study.

Most patients suffered from pressure ulcers over the sacral region (36.8%), the sacrum and trochanteric region (19.63%) and ischium (10.44%) in our study. The most common pressure ulcer sites were the sacrum (39.2%), the heel (19.6%), the ischium (14.6%), and the trochanter (5.0%) as obtained in the study done by Eithne Keelaghan et.al. A similar study done by Pirko Maguina and Holly Kirkland-Walsh showed that the location of the injuries was predominantly sacral. As per our findings, the majority of patients were diagnosed with third grade sacral pressure wound.

In this study, the pressure ulcers were mainly of stage 3 (40.49%), combined grade 2 and 3 (18.41%), then stage 2 (11.66%) and stage 4 (11.04%). Similarly study done by Eithne Keelaghanet. al showed almost half of the preexisting pressure ulcers were of stage 2 (46.8%); 6.1% were stage 1, 7.0% were stage 3, and 3.5% were stage 4. Stage 1 pressure ulcers were less common, and stages3 and 4 pressure ulcers were more common.

Pressure wounds were caused by different factors, among them wound/ injury being a major cause during our findings i.e. 36.81%.

Most of the patients suffering from patient wound were advised to follow high protein diet (41.72%) in our study.

We categorized the medications used into two headings namely surgical and post-surgical medicines. Mostly, third generation cephalosporin- ceftriaxone was used extensively both during and after surgery. During surgery, most commonly used medications include fentanyl, paracetamol, midazolam and propofol. For anesthetic effect, propofol and ketamin were used in most of the cases. Drugs like mephentermine, atropine and phenaramine maleate were used as per the individual requirement of the patients. For post-surgical condition, ceftriaxone, acetaminophen, combination of ibuprofen and paracetamol, ascorbic acid, ranitidine and pantoprazole were mostly used for management of pressure ulcers. There was predominant use of vitamin and minerals to enhance wound healing of the patients. Drugs like metronidazole, metformin, warfarin, gabapentin and amlodipine were also used in patients as per their individual requirements. A pilot study done by Petra Flock studied the effectiveness of diamorphine gel to control pain in pressure ulcer[3] but its usage was not found in this study. A study by Riley S. Rees et.al showed once-daily treatment of chronic pressure ulcers with becaplermin gel significantly increased the incidences of complete and ≥90% healing[10] but this gel was not found in our study.

In a study done by Gill Norman et. al, all antibiotics used were topical agents, there was no use of systemic antibiotics. The included trials assessed the following antimicrobial agents: povidone iodine, cadexomer iodine, gentian violet, lysozyme, silver dressings, honey, pine resin, polyhexanide, silver sulfadiazine, and nitrofurazonewith ethoxy-diaminoacridine.[11] In our study, systemic antibiotics like ceftriaxone, ampicillin and cloxacillin were used frequently.

CONCLUSION

This study showed males to be more vulnerable than female and more patients belonged to age group of 21-40 years. Many patients had duration of stay between 21-40 days. Third grade sacral pressure wound was major diagnosis, sacral region being the most common affected body part and third grade wound being predominant. The wounds and injuries were the common cause that got developed as chronic pressure ulcer and majority of the patients were not paraplegic during our course of study. Mainly, patients were advised to take high protein diet and other protein powders were also prescribed as per patient requirement.

The medications mainly used were antibacterial, ceftriaxone being extensively used; analgesics that include paracetamol, combination of ibuprofen and paracetamol, fentanyl; and vitamin and mineral supplements such as ascorbic acid, vitamin B complex, iron , folic acid. There was minimum usage of steroid drugs and medications were used rationally during the pharmacotherapeutic management of pressure wounds.

Due to the proper pharmacotherapeutic management of different cases of pressure wounds, the condition of the wounds was healed in most patients. Patients were advised to change dressings daily and apply moisturizing lotions for those wounds which hadn’t been completely healed.

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