



ORIGINAL RESEARCH PAPER

Pharmacology

TO ASSESS THE FUNCTIONAL OUTCOME WITH RELATION TO IMPLANTS USED FOR REDUCTION OF LOWER LIMB FRACTURES IN MENOPAUSAL WOMEN

KEY WORDS: Implant, Functional outcome, Fracture, Osteoporosis, Menopause.

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ABSTRACT

A fracture is a break in the continuity of the bone. Fractures can occur due to falls or trauma. Reduction of a fracture can be done using implants like screws, nails, plates, and wires through Closed reduction internal fixation (CRIF) or open reduction internal fixation (ORIF) methods. The aim of the study was to understand the functional outcome with relation to various implants used in the surgical reduction of fractures of in menopausal women. In our study, we included a group of 50 women who are of menopausal age and observed their functional outcome with the implant used. Our study will be an eminent reference to understand implant selection. This study can be helpful to improve patient care and eliminate risks of the wrong choice of implants which can lead to unexpected risks further or decline in the patient's ability to perform regular activities.

INTRODUCTION:

Fracture is the break in the continuity of the bone. Bone fractures can be classified based on various characteristics. Based on the shape or pattern of the fractured fragments, fractures are divided into transverse, oblique, spiral, and comminuted. Other types include compression or crush fracture, gunshot fracture, as well as greenstick fracture, and avulsion fracture. Based on the aetiology, there are three types of fractures including traumatic, fatigue, and pathological. Finally, according to the nature of the fracture, there are closed and open fractures [1]. Fractures occur in individuals of all ages. However, the type and body location vary widely depending on different factors, mainly related to individual bone quality and the nature of the trauma. From a societal view, it is of interest to know the incidence of different fractures in a certain population. Such knowledge can form a base for the organization of relevant healthcare and for undertaking preventive measures to mitigate the risk of fractures. This may involve general community organization, including the planning of road traffic and living conditions for the elderly, but even more specific preventive measures for certain risk groups [2][3] Reduction is a surgical procedure to repair a fracture or dislocation to the correct alignment. When a bone fractures, the fragments lose their alignment in the form of displacement or angulation. For the fractured bone to heal without any deformity the bony fragments must be re-aligned to their normal anatomical position. Orthopaedic surgery attempts to recreate the normal anatomy of the fractured bone by reduction of the displacement [4] Reduction could be by "closed" or "open" methods:

- *Open reduction* is where the fracture fragments are exposed surgically by dissecting the tissues.
- *Closed reduction* is the manipulation of the bone fragments without surgical exposure the fragments.

Because the process of reduction can briefly be intensely painful, it is commonly done under a short-acting anaesthetic, sedative, or nerve block. Once the fragments are reduced, the *reduction* is maintained by application of casts, traction, or held by plates, screws, or other implants, which may, in turn,

be external or internal [4] In menopausal women, it is crucial to understand that the bone density is reduced and thus correcting a fracture surgically must be done with care and the correct type of implant must be chosen to avoid unnecessary risks like the rigidity of bone, decrease in the ability to perform daily activities. Many people are unaware of the link between a broken bone and osteoporosis. Osteoporosis, or "porous bone," is a disease characterized by low bone mass. It makes bones fragile and more prone to fractures. Osteoporosis is called a "silent disease" because bone loss occurs without symptoms. People typically do not know that they have osteoporosis until their bones become so weak that a sudden strain, twist, or fall results in a fracture. In osteoporosis, it is crucial to exercise to keep the bone flexible and rigid.

MATERIALS AND METHODS: A total population of 50 menopausal women who are between 50-75 years of age was included in the study (mean ± SD, 59.8 ± 7.24). The subjects have been diagnosed with osteoporosis for over a year. Study-related information like the type of fracture, location of the fracture, the reason for fracture, surgical method, and implant used was collected using a specifically designed questionnaire. None of these subjects included in our study had other co-morbidities like diabetes, hypertension, or thyroid. None of the subjects had any sort of bad social habits. Fracture compromises exercise and activity since the surgical reduction of the fracture using an implant can demand bed-rest of the long healing period. We assessed the ability of the patients as they resumed their activities with the implant. The functional outcome is assessed by using a scoring system with the help of the OMSS (Olerud and Molander scoring system) scale and scoring were categorized as 100-80=Excellent; 79-50=Good; 49-25=Fair; <25=Poor. All results are presented in tables and graphs.

DESIGN: Retrospective Observational Study

MAIN OUTCOME MEASURES: Average type of fractures due to falls, average type of fractures due to trauma, the functional outcome with implants used in CRIF, a functional outcome implants used in ORIF.

MATERIALS AND METHODS: We collected the patient details like demographics and the surgical procedures performed on them in a specially formatted proforma. This proforma enabled us to gather information relevant to our study.

INTERPRETATION OF RESULTS: Table-1 shows the common of fracture in the total population; Table-2 shows the most common type of fracture due to falls; Table-3 shows the most common type of fracture due to trauma.

DISCUSSION:

50 women who are in menopausal age (50-75 years) and who have undergone a surgical reduction of fractures particularly in lower limbs in a tertiary care hospital within a span of 9 months were included in this study. We observed that in a total population of 50 subjects, 52% were HIP fractures; 26% were both bone fractures; 10% were femoral fractures; 12% were tibial fractures. While the total number of cases due to falls was 32 and the most common fracture in this group was hip fractures (59.38%) while the less common fracture was tibial (9.38%). While 18 patients had trauma as their reason of admission in which the common type of fracture was both bone (tib-fib) (44.44%) and less common was femur fractures (5.56%) reported. In the overall population, 36 subjects had CRIF and 14 Subjects had ORIF methods for their fracture reduction. During the study we observed that the 35 individuals who had CRIF, 26 individuals (72%) had NAILS as implant of choice, while 7 individuals (22%) had PLATES as choice of implant while (1,1) 2% had screws and wires respectively. Among the 15 who had ORIF, 7 individuals (46%) had SCREWS as choice of implant, while 6 individuals had PLATES as choice of implant and the other (1,1) 2% had wires and nails respectively. In the study we have known that most of the common fractures due to fall (hip fractures respectively 59.38% where 19 patients) and trauma (both bone fractures respectively 44.44% where 8 patients). Although the choice of implants for CRIF and ORIF procedures was Nails, Screws respectively, the larger group of people had Good functional outcome rather than Excellent. This shows that the patient's quality of life has been compromised. The functional outcome was calculated using the OMSS scoring scale with excellent, good, fair, and poor as categories. The subject's abilities after surgical reduction and implantation are estimated and scoring is given based on their ability to perform their regular activities like walking, sitting, climbing, etc.

CONCLUSION:

Fractures cause a relative amount of change in the lifestyle of an osteoporotic woman. Furthermore, surgical reduction of fracture with implant can compromise the patient's ability to return to their daily activities. Our study limits the spectrum of discussion only to the highly chosen implant and further research must be required to comprehend the over-all effect of surgical reduction of a long bone fracture in an osteoporotic woman.

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CONFLICT OF INTEREST: None

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ABBREVIATIONS:

- CRIF - Closed reduction internal fixation
- ORIF - Open reduction internal fixation
- OMSSS - Olerud and Molander scoring system

TABLES AND GRAPHS:

Table-1

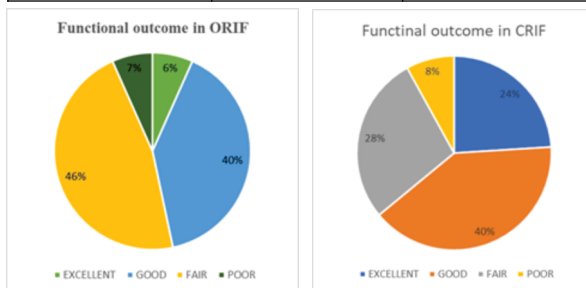
Type of fracture	Number	Percentage
Both Bone	5	15.63%
Femoral	5	15.63%
Tibial	3	9.38%
Hip	19	59.38

Table-2

Type of fracture	Number	Percentage
Both Bone	13	26%
Femoral	5	10%
Tibial	26	52%
Hip	4	12%

Table-3

Type of fracture	Number	Percentage
Both Bone	8	44.44%
Femoral	1	5.56%
Tibial	3	16.67%
Hip	6	33.33%



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