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PROPHYLACTIC USE OF ANTIBIOTICS IN CLOSED ORTHOPEDIC FRACTURES: GUIDELINES AND PRACTICE

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ABSTRACT

A Prospective observational study on prophylactic use of antibiotics use in closed fracture was conducted in Navodaya medical college hospital & Research center, Raichur. The aim of the study was to assess whether the antibiotics are prescribed according to guidelines for closed fractures. Data were collected using standard data entry form. A total of 50 cases were assessed during the study period of April 2018 to September 2018 of which 34(68%) were male and 16(32%) were female. Of all 50 cases collected type of fractures include forearm fracture 12(24%), vertebral fracture 7(14%), hip fracture 6(12), Humerus fracture 05(10%), Fibula 05(10%), Wrist fracture 04(8%), Knee fracture 03(6%). Types and doses of antibiotics prescribed include ceftriaxone 1mg in 30(60%) patients, cefotaxime 1mg in 17(34%) patients, cefuroxim 1mg in 06(6%). Our study concludes that the most commonly prescribed antibiotics for closed fracture are cephalosporin antibiotics of which 2nd generation cephalosporins are given higher priority and our study concludes that antibiotics are prescribed according to standard guidelines.

KEYWORDS: Infection, prophylactic, orthopedic, guidelines.

INTRODUCTION

A fracture is a broken bone. A bone may be completely fractured or partially fractured in any number of ways (crosswise, lengthwise, in multiple pieces). There is a range of fracture types, including: Avulsion fracture, Comminuted fracture, Compression (crush) fracture, Fracture dislocation, Greenstick fracture, Hairline fractur, Impacted fracture, Intraarticular fracture, Longitudinal fracture, Oblique fracture, Pathological fracture, Spiral fracture, Stress fracture, Torus (buckle) fracture, Transverse fracture. The fractures and dislocations require highly skilled care. Accidents are said to be one of the leading causes of fractures. Accidents accounts for the 5th leading cause of mortality, which accounts for 5.2% of all mortality, according to 1996 who repor.[1] Though the rates is noticeably decreased in developed country, still it is a burning problem in developing countries.[2] The accident is a major epidemic non-communicable disease in the world.[3-4]

Infection is a catastrophic and one of the most dreaded complications in orthopaedics. Several measures have been undertaken to reduce the risk of infection, one of which is the use of systemic prophylactic antibiotics. Many studies have shown that prophylactic antibiotics reduce the risk of infection where an implant was used.[9-10]

In spite of much research, hip fractures continue to pose a serious health care problem as far as health policy makers and public health care organizations are concerned. Indeed, despite some evidence of declining hip fracture prevalence rates[5-6] hip fractures remain a persistent cause of excessive morbidity, reduced life quality, and premature mortality among older adults.[7-8]

In surgeries of the hip, Hunfeld et al[11] and Southwell-Keely et al[12] concluded that clear evidence does exist regarding the usefulness of antibioticprophylaxis with first- or second-generationcephalosporins.[13] A review by Gillespie and Walenkamps[14] in 2001 on the effectiveness of prophylactic antibiotics in patients undergoing surgery for hip or other long bone fractures concluded that antibiotic prophylaxis should be offered to those undergoing surgery for closed fracture fixation.[15] This study was conducted in a tertiary care hospital to determine if prophylactic antibiotic is routinely practiced in patients with closed fractures and undergoing internal fixations for closed fractures, to identify the commonly used antibiotics for prophylaxis, and to critically assess this practice in relation to the national clinical practice guidelines.

MATERIALS AND METHOD

A Prospective observational stud y design was carried out for a period of 6 months from April 2018 to September 2018 in Navodaya Medical College Hospital and Research Centre, Raichur. Patients admitted in

orthopedic ward of hospital were included in the study. Patients not willing to participate in the study were excluded from the study. The study was approved by Institutional Ethics Committee (IEC) of the hospital. The study was carried out in Orthopedic departments of NMCH & RC, Raichur which is 1000 bedded multi-specialty tertiary care teaching hospital with Anesthesia, Orthopedics, Pediatrics, ENT, Radio diagnosis, General medicine, TB and Respiratory diseases, General surgery, Urology, OBG, Ophthalmology, Psychiatry, Telemedicine facilities, Simulation lab and Rehabilitation.

RESULTS

A total of 50 patients with internal fracture were included in the study.

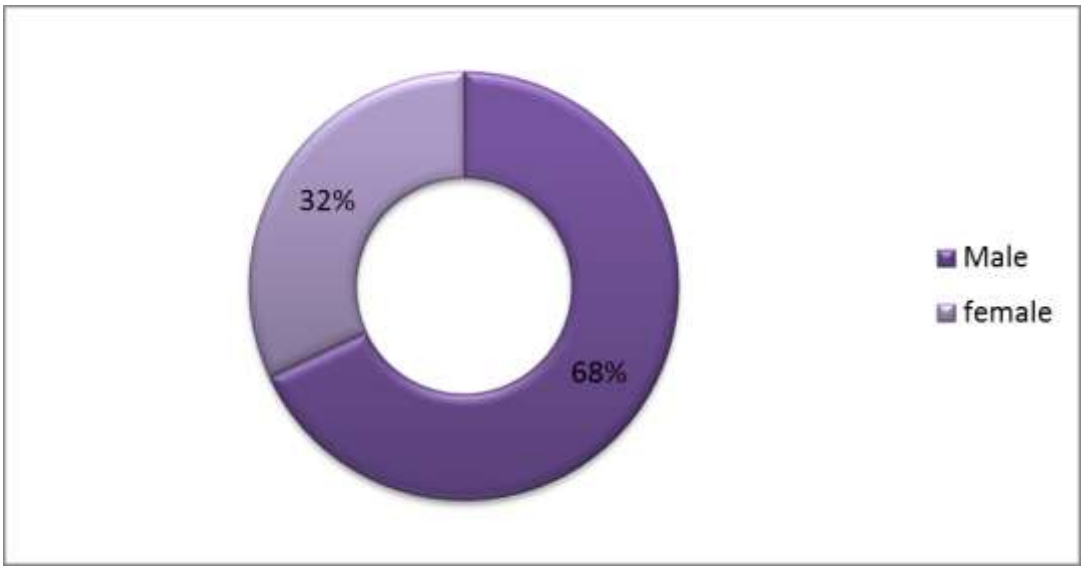

Fig. 1: Gender distribution.

As shown in fig 1. Male population 16(32%) was found to be more than female population 34(68%).

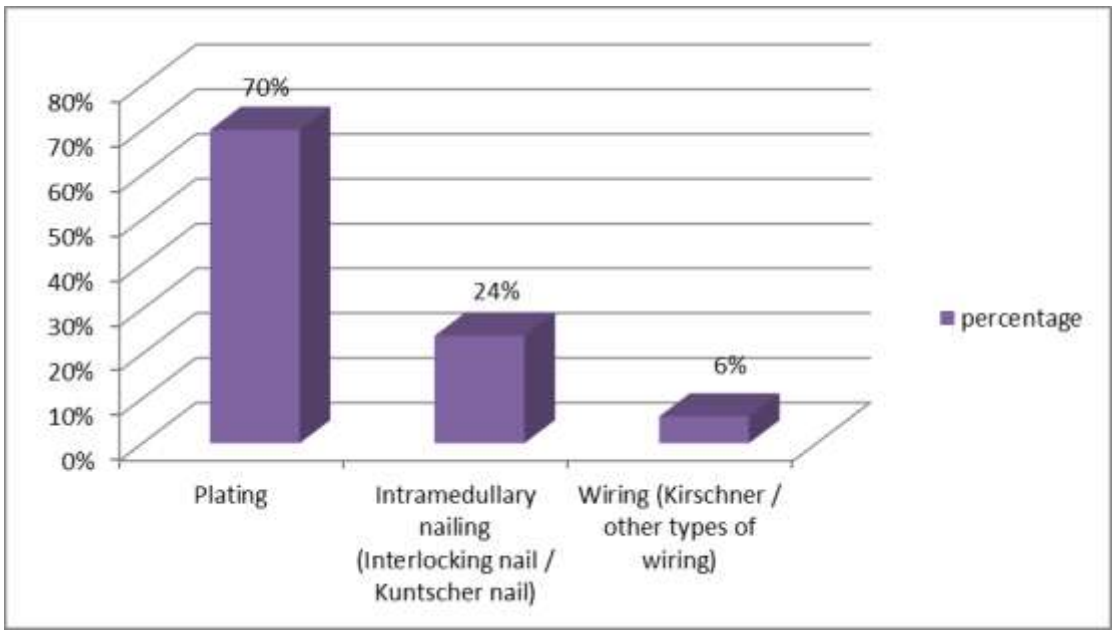

Fig. 2: The types of internal fixation for closed fractures and the number of patients.

As shown in fig 2. In 35(70%) patients internal fracture was fixed by using plates, In 12(24%) patients by using Intra medullary nailing, and in 3(6%) patients by using wiring.

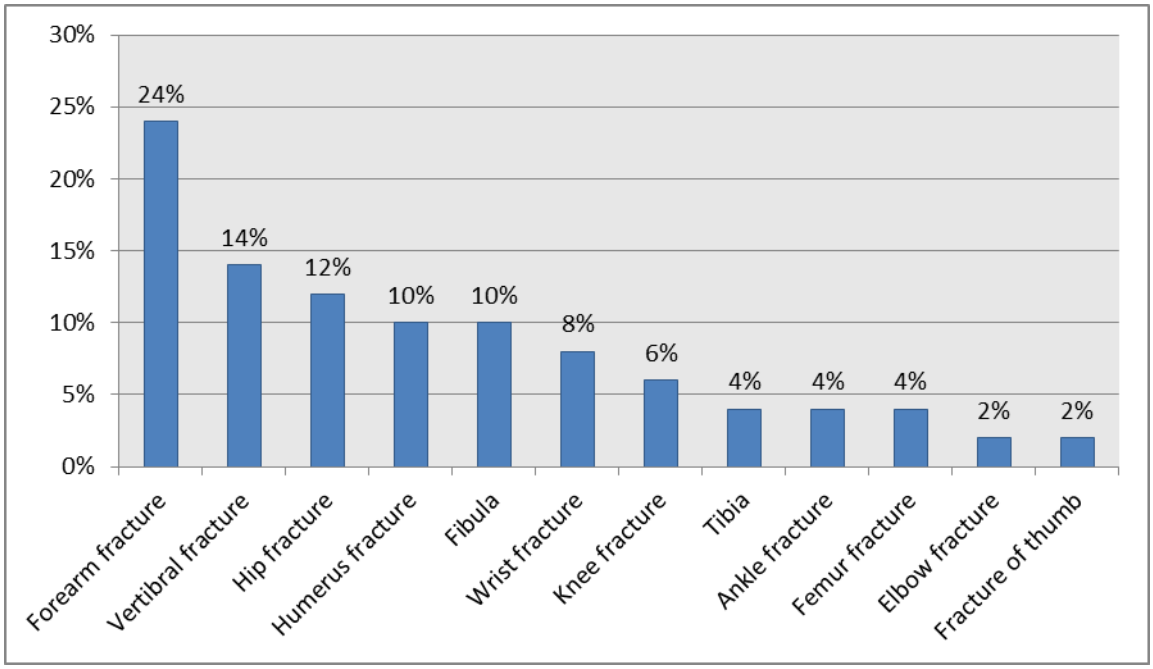

Fig. 3: Types of fractures.

As shown in fig 3. Out of 50 fracture cases, 12(24%) were forearm fracture, 7(14%) were vertebral fracture, 6(12%) were hip fracture, 5(10%) were humerus fracture, 5(10%) were fibula fracture, 4(8%) were wrist fracture, 3(6%) were knee fracture, 2(4%) were tibia fracture, 2(4%) were ankle fracture, 2(4%) were femur fracture, 1(2%) was Elbow fracture, and 1(2%) was fracture of thumb.

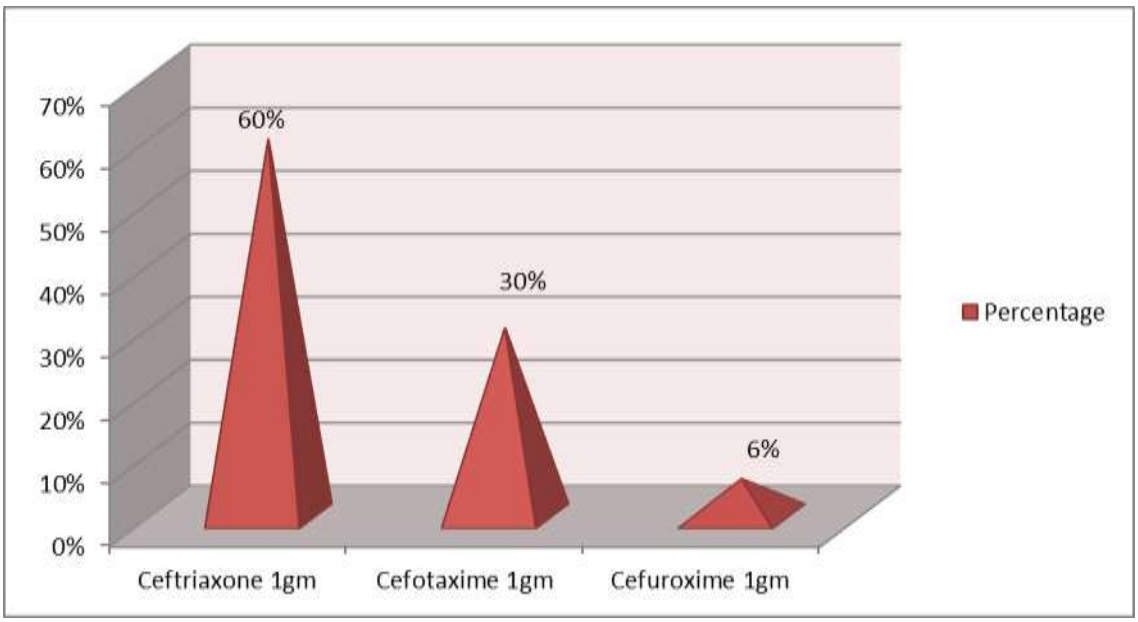

Fig. 4: The types and doses of the prophylactic antibiotics given to patients who had internal fixation for their fractures.

As shown in fig 4. Cephalosporin class of antibiotics was prescribed in all 50 patients of which ceftriaxone 1mg was prescribed in 30(60%) patients which is a 3nd generation cephalosporin antibiotic, followed by cefotaxime 1mg in 15(60%) patients which is also a 3rd generation cephalosporin antibiotic, and cefuroxime in 3(6%) patients which is a 2nd generation cephalosporin antibiotic.

CONCLUSION

Prophylactic antibiotics are found to be widely prescribed for fractures. The first line antibiotics as recommended by the present guideline were not given in any of the patients. Second generation followed by third generation cephalosporins are the most popular antibiotics prescribed in internal fractures. Thus our study concludes that second line antibiotics are more commonly prescribed of which cephalosporin antibiotics

are of higher priority. Study concludes that antibiotics are prescribed according to guidelines.

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Conflict of Interest: Nil.

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