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Study of Analgesic and Antibiotics in Post Operative Surgical Patients

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ABSTRACT: Background: Analgesic and antibiotics play a crucial role in post operative care pain after surgery pain usually curbed by analgesic. Surgical site infection prevented by administration of appropriate antibiotics. This study aimed to evaluate analgesics and antibiotics in postoperative patients in accordance with post-operative pain and surgical site infection. **Material and methods:** The prospective study was conducted for 6 months duration in in-patient department of surgery and orthopaedics at District headquarters government hospital, Nagapattinam, Tamil Nadu. The study was carried over a period of 6 months from April 2019 to October 2019 which includes 60 cases. **Result**: In this study, a total of 60 post-operative patients were selected. The age wise distribution data consists of (0 – 20) 20% patients , (21 – 40) 31% patients,(41 – 60) 37% patients ,(61 – 80) 12% patients. Gender wise data includes 43(72%) patients was identified as male and 17(28%) patients were identified as female. In this study orthopaedic patients are low in number 7(12%) compared to general surgery patients 53(88%).The general surgery patients experience a low pain score than compared to the orthopaedic patients. The reason for low pain perception is the use of Combination therapy analgesics. The maximum pain recorded in general surgery patients was 3 and the maximum pain recorded in orthopaedic patients was 4. Among 60 patients 40 patients were treated with combination analgesics and 20 patients were treated with mono-therapy analgesics. Patients treated with combination therapy analgesics had show better satisfactory effects than compared to patients treated with mono-therapy analgesics. For prophylaxis of surgical site infection Cephalosporin's were preferred as a antibiotics among that ceftriaxone (40%), followed by Cefuroxime (37%) respectively. All the patients undergone a surgery were treated with prophylactic antibiotics to reduce the rate of surgical site infection. Among 60 patients all the patients were treated with prophylactic antibiotics and none of them had developed with surgical site infection. **Conclusion:** In Comparison between general surgery and orthopaedic surgery, orthopaedic post-operative patients had more pain, than general surgery patients. Combination therapy of Pentazocine and Diclofenac injection had more success in pain relief compared with Diclofenac injection mono-therapy in this particular study. Antibiotics prevent the surgical site infection in both general and orthopaedic surgery. 100% prevention of surgical site infection after surgery by prophylactic antibiotics has been found in this study.

KEY WORD: Analgesic, Antibiotics, Post Operative Patients, General Surgery, Orthopaedic Surgery

I. INTRODUCTION

[1]. Analgesic in post operative patients

Greater than 80% of patients who subject to surgical treatment facing acute postoperative pain and nearly 75% of patients with postoperative pain report the severity as mild, moderate, severe, or extreme. Some documentation revealed less than half of patients who engage in surgery accounted adequate postoperative benefit. The International Association for the Study of Pain have acknowledged proper pain relief is a human right to all. Badly controlled postoperative pain could pave the way to complications and extend recovery. Poorly suppressed acute pain could progress into chronic pain it significantly affect the quality of life. Most of the time Post- surgical pain acute in nature and could be nociceptive, inflammatory or neuropathic. Postoperative pain recognized as pain in quick onset and possibly short duration. It is accounted around 50% of patient's encountered pain within a day right after surgery and slowly reduced within a couple of days after the surgery. The Wong-Baker FACES pain rating scale (WBS) had used in patients for reporting pain severity Major benefit of valuable postoperative pain management is patient pain relief, better feeling,

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and satisfaction, to early mobilization. The aim of pain management should be ascertained with each patient. Choosing to manage some pain and mean to avoid unpleasant side effects of therapy, like sedation, nausea, or pruritus. The advantage of non-opioid analgesics like NSAIDS indicated in minor surgical procedures mainly in ambulatory surgery. Regional anaesthetic penetration along with subcutaneous infusions surrounding the wound which are some of the pain relief management techniques has contain the special advantages of offering superior analgesia and free from some of the adverse effects of opioid treatment. Anyway, choice of opioid is a primary and most commonly used pharmacological therapy for post operative pain management.

[2]. Anti-biotic in post operative patients

Surgical site infection (SSI) described as infection associate with operative procedure that appears at or near to the surgical site within 30 days right after procedure or within 90 days if prosthetic material is inserted at surgery. Surgical site infections (SSIs) were the common often health care-associated infection (HAI) in low- and middle-income countries. SSIs longer postoperative hospital stays and may also need extra surgical procedures and causes intensive care admission, thus resulting in a strong attributable morbidity and mortality. SSI may be prevented by surgical antibiotic prophylaxis (SAP). SAP is defined as the averting infectious complications by administering a proper anti-microbial drugs right before to exposure**.** Surgical site infections (SSIs) were accounted around 20% of healthcare-acquired infections outer side of the intensive care unit and were the regular reason of health care acquired infections in surgical patients. Surgical antibiotic prophylaxis (SAP) has believe to reduce the complication of post-operative infections, however, the benefit of SAP is unknown**.** Worldwide, SSI involves a 2.5% to 41.9% prevalence rate**.** Antibiotics are provided not only for treating the infection it is also for the prophylaxis to prevent post-surgical infection**.** The aim for Anti-microbial agents to surgical patients is decrease incidence rate of surgical site infection. Utilise antibiotics in supported by enhance its effectiveness. Reduce the adverse effect of antibiotic on the patient's normal bacterial flora**.** Improper use of surgical antibiotic prophylaxes like inappropriate choice, timing, and period are mostly involved with a spiking prevalence of antibiotic resistance, tend to cause adverse outcome and also enhance the risk of surgical site infections.

II. MATERIAL AND METHODS

The prospective study was conducted for 6 months duration in in-patient department of surgery and orthopaedics at District headquarters government hospital, Nagapattinam, Tamil Nadu. The study was carried over a period of 6 months from April 2019 to October 2019 which includes 60 cases.

Study material:

Patient profile form:

Patient profile form consist of patient demographic data such as age, sex, chief complaints past medical history, past medication history , lab investigation reports, provisional diagnosis, preoperative procedure, surgery details , postoperative follow up data.

Study Procedure:

The patient's data like age, sex, IPNO, date of admission and diagnosis, Pre- operative medication, types of anaesthesia, surgery procedure, surgery notes, post- operative follow up data includes pain perception, drugs prescribed were collected.

1. Inclusion criteria

General surgery & orthopaedic post-operative patients were included irrespective of age and sex.

2. Exclusion criteria

Patients who refuse to participate.

Pregnant women, Plastic surgery, Dental procedures, Plastic surgery patients were excluded.

III. RESULT

Age wise distribution of patients in postoperative care

A total of 60 patients were undergoing postoperative care during the study periods in various wards of government headquarters hospital, Nagapattinam. Among 60 patients 37% patients were aged between41-60,31% patients were aged between 21-40,20% patients were aged between 0-20,12% patients were aged between 61-80. These findings in table 1

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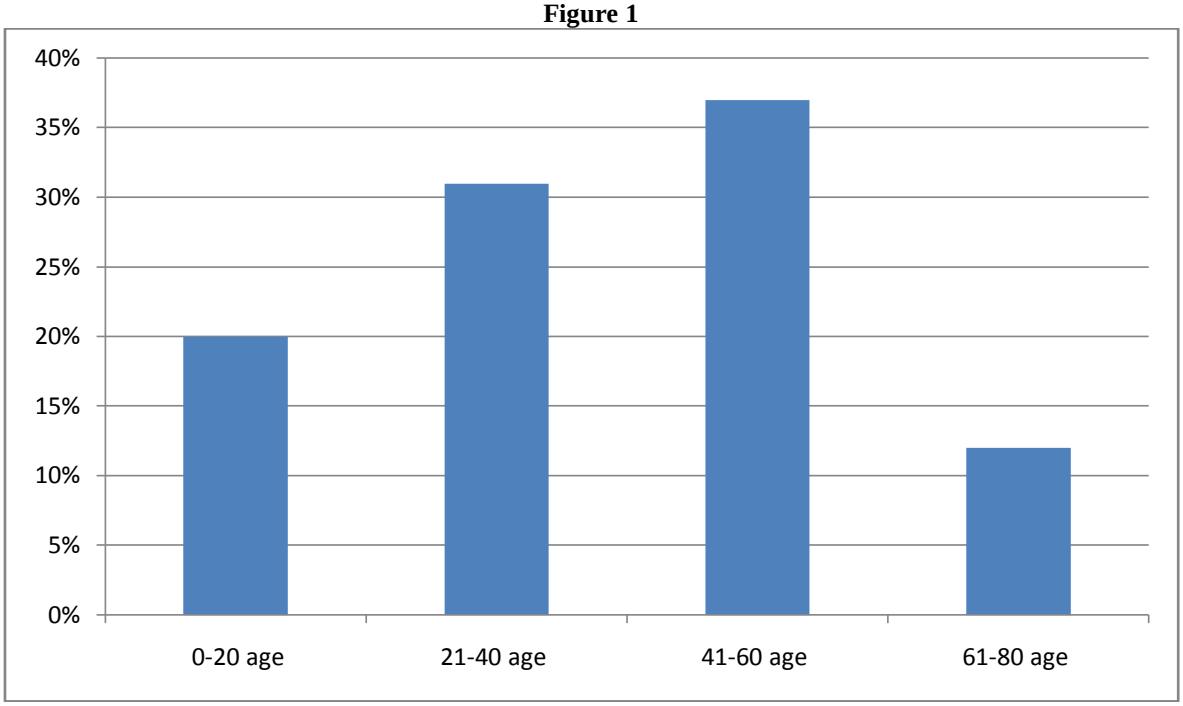
Table 1

S. no	Age	No. Of patients	Percentage
1	0-20	12	20
2	21-40	19	31
3	41-60	22	37
4	61-80	7	12
5	Total	60	10

Figure 1



Gender wise distribution to patients on post-operative care

Among 60 patients 72% patients were identified as male and 28% patients were identified as female. These findings were shown below in table -2

Table 2

S. no	Gender	Gender wise distribution	Percentage
1	Male	43	72
2	Female	17	28
3	Total	60	100

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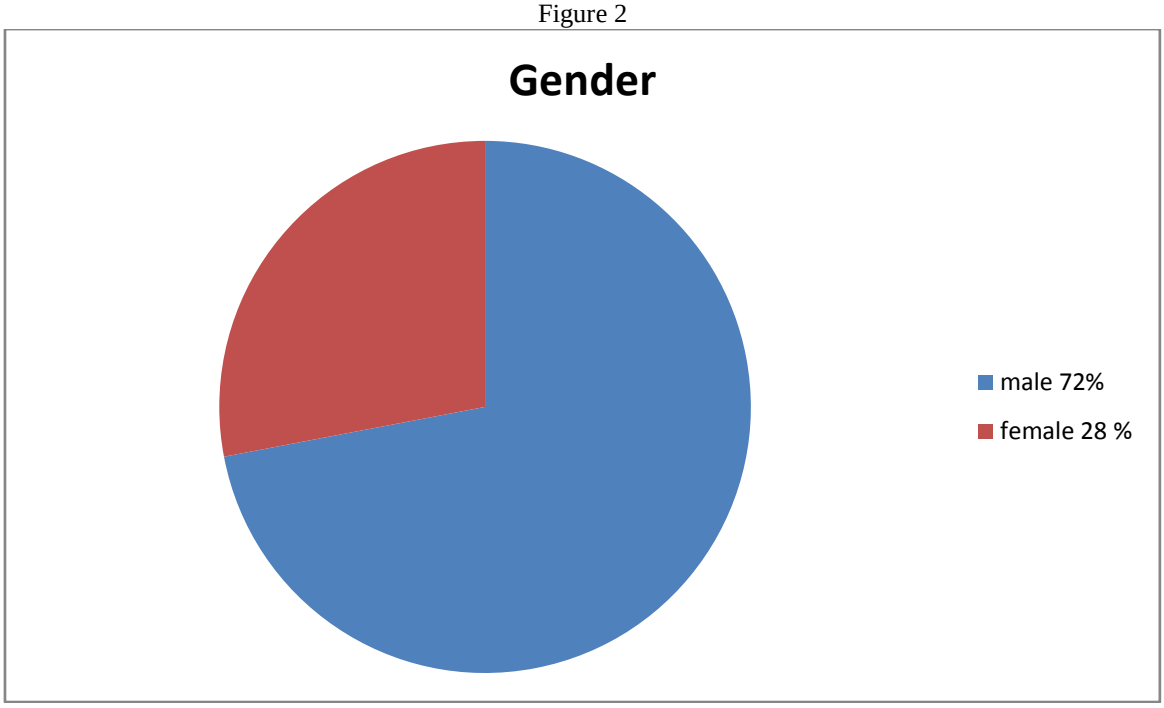
Figure 2



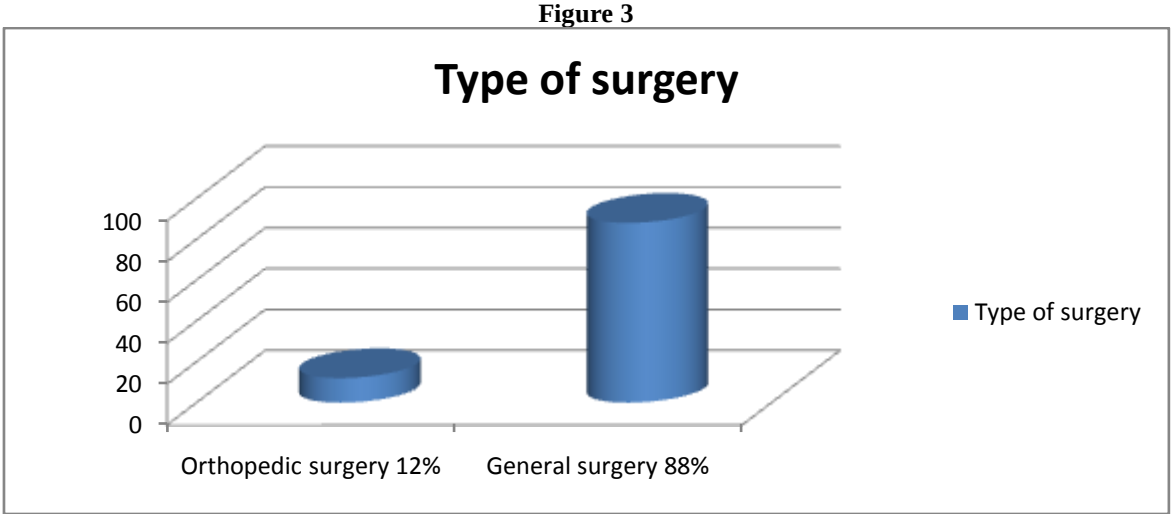
Distribution based on (surgery) specialty in post operative care

Among 60 patients 12% of patients were in orthopedic postoperative care and 88% of patients were in general surgery post-operative care. The findings are shown in table 3

Table 3

S. no	Types of surgery	No. Of patients	Percentage
1	Orthopedic surgery	7	12
2	General surgery	53	88
3	Total	60	100

Figure 3



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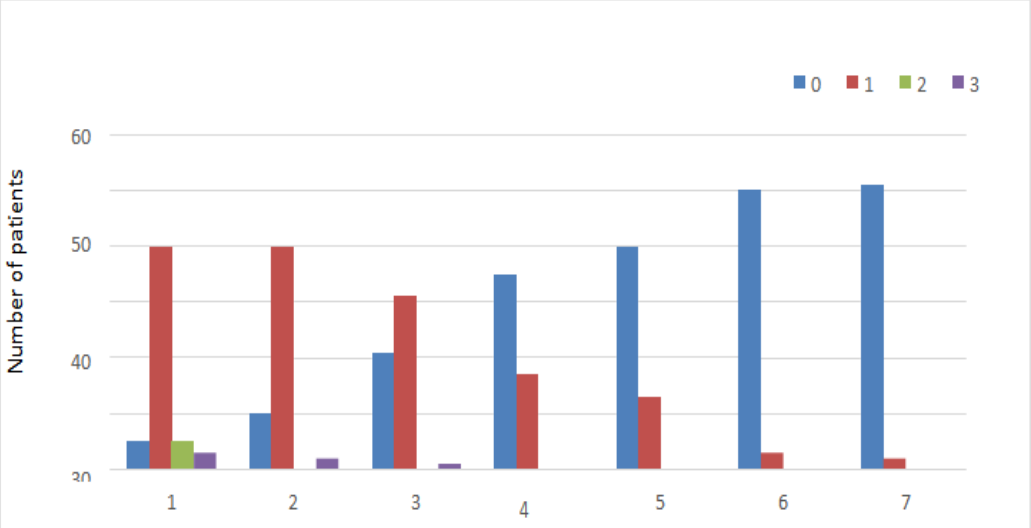
Pain perception in general surgery

Pain scores were measured in general surgery patients 53(88%). The maximum pain was recorded as 3 and the minimum pain was recorded as 0.The findings are shown in table 4.

Table 4

S. no	Pain score range	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	0	5	10	21	35	40	50	51
2	1	40	40	31	17	13	3	2
3	2	5	1	0	1	0	0	0
4	3	3	2	1	0	0	0	0

Figure 4



Pain perception in orthopedic surgery

Pain score was measured in orthopedic surgery patients (7). The maximum pain was recorded as 4. The findings are shown in table 5.

Table 5

S. no	Pain score range	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	0	0	0	0	0	0	2	3
2	1	0	0	0	2	4	4	3
3	2	0	0	2	2	0	1	1
4	3	0	4	2	2	2	0	0
5	4	7	3	3	1	1	0	0

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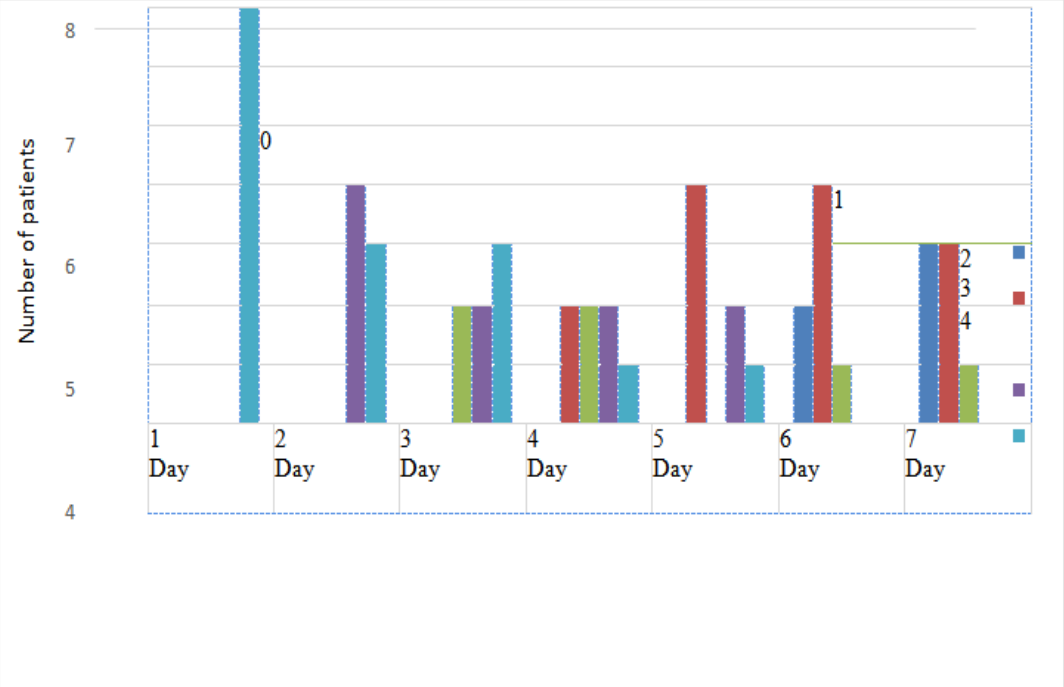
Figure 5



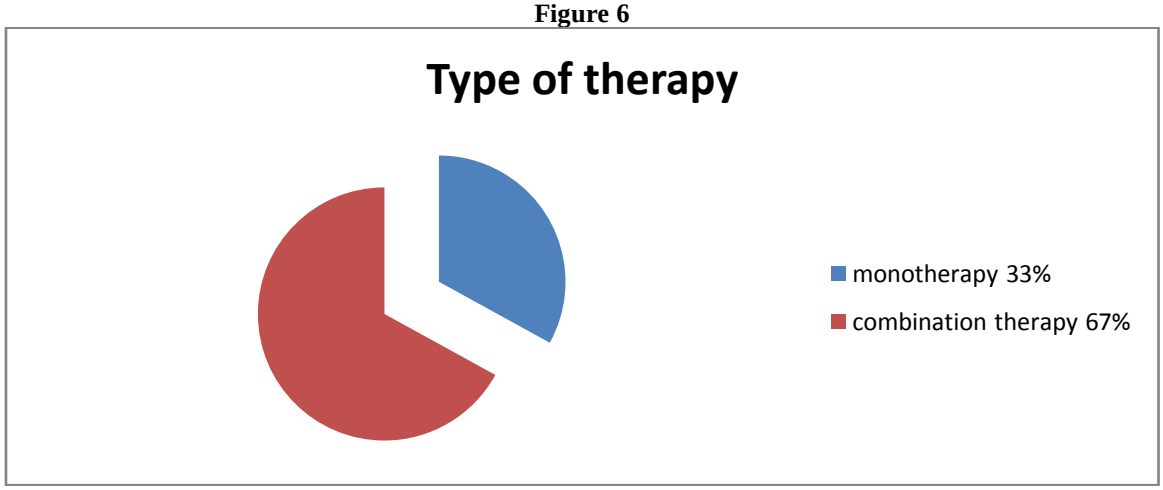
Comparison between patients receiving mono-therapy and patients receiving combination analgesic therapy

The 60 post-operative patients are treated with either mono-therapy (injection Diclofenac sodium) or combination therapy with (injection Pentazocine) analgesic drugs for pain management. The findings are shown in table 6

Table 6

S. no	Type of therapy	No. Of patients	Percentage
1	Patients receiving monotherapy	20	33
2	Patients receiving combination therapy	40	67

Figure 6



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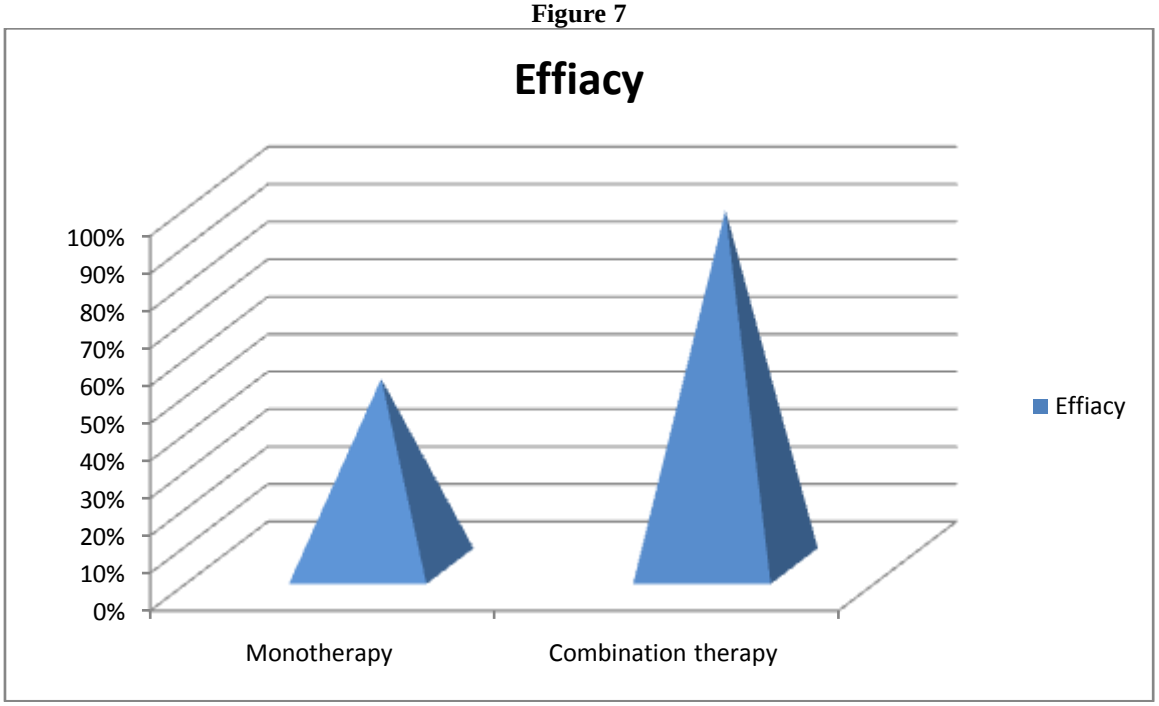
Efficacy of mono-therapy and combination therapy in post operative patients

On comparing the efficacy of mono-therapy and combination therapy, combination therapy is found to be effective. It is shown in the table 7.

Table 7

S. No	Type of therapy	Total no. Of patients treated	Total no of patients satisfied in pain	Percentage
1	Patients receiving mono-therapy (Diclofenac Sodium)	20	10	50
2	Patients receiving combination therapy (Pentazocine +Diclofenac	40	38	95

Figure 7



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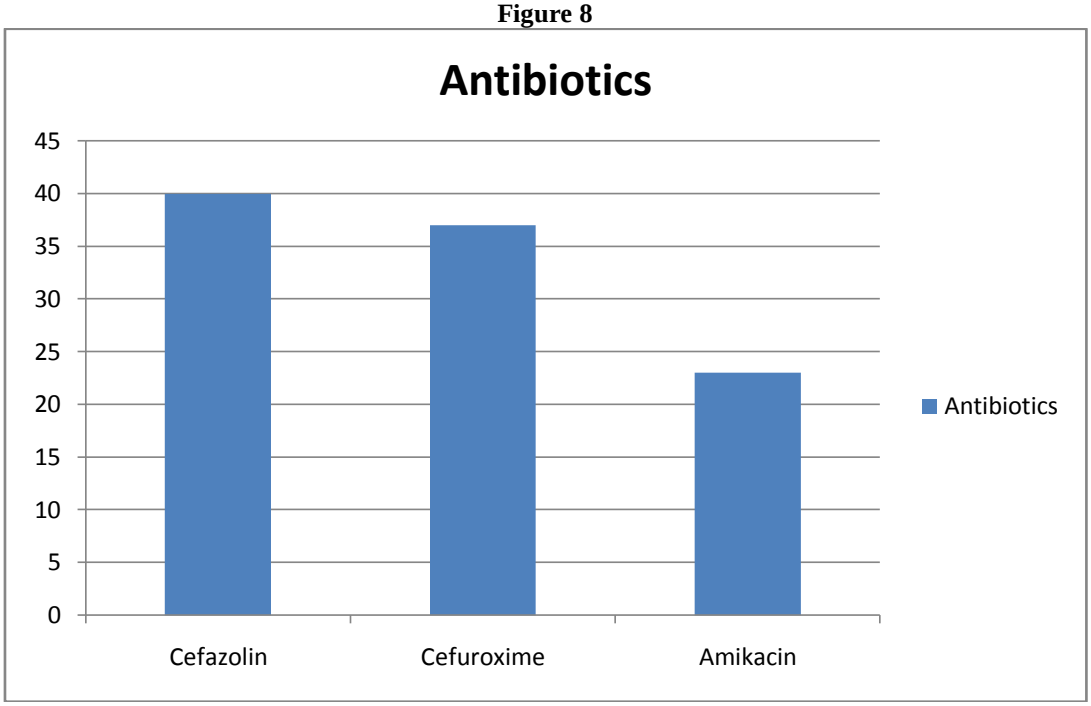
Antibiotics being prescribed for post operative patients

Overall 3 antibiotics were preferred in post operative patients among that ceftriaxone (40%), followed by cefuroxime (37%), amikcin(23%). The findings are shown in table 8

Table 8

S. No	**Antibiotics**	**Total number of patients**	**Percentage**
1	**Injection ceftriaxone**	24	40
2	**Injection cefuroxime**	22	37
3	**Injection amikacin**	14	23

Figure 8



Distribution based on prophylactic antibiotic treatment

The patients are classified based on whether they are treated with prophylactic antibiotic or not. The findings are shown in table 8.

Table 9

S. no	Type of surgery	Number of patients	Patients receiving prophylaxis antibiotic	Patients not receiving Prophylactic antibiotic
1	General surgery	53	53	0
2	Orthopedic surgery	7	7	0

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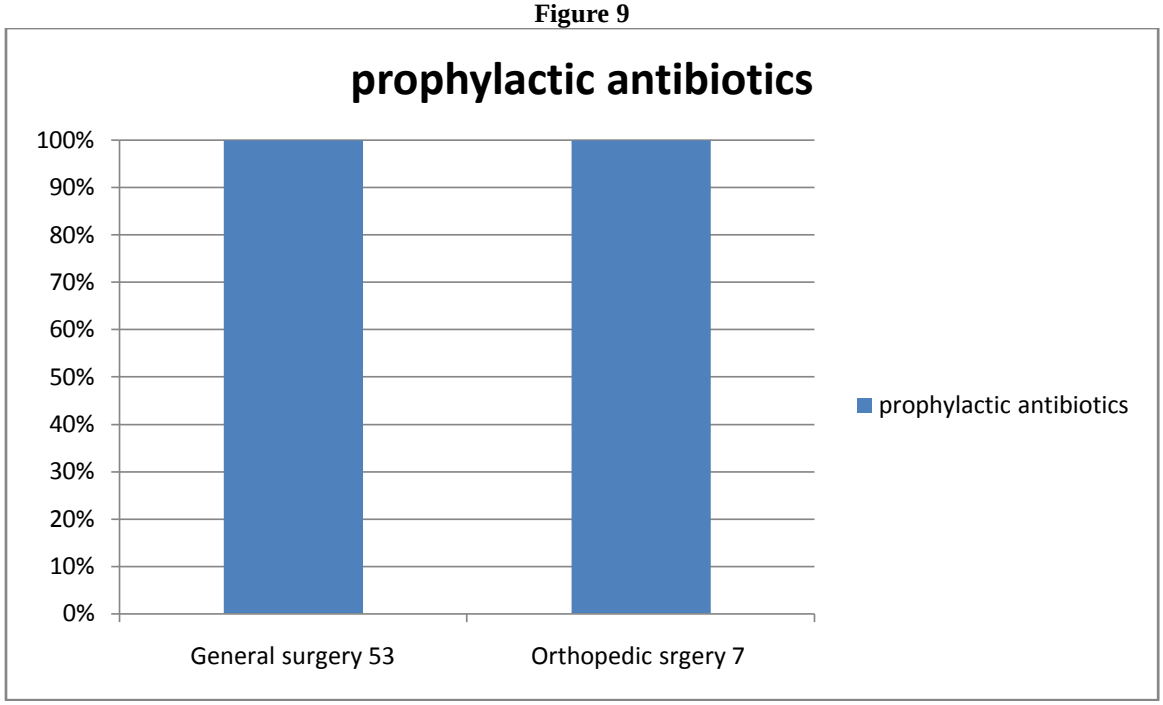
Figure 9



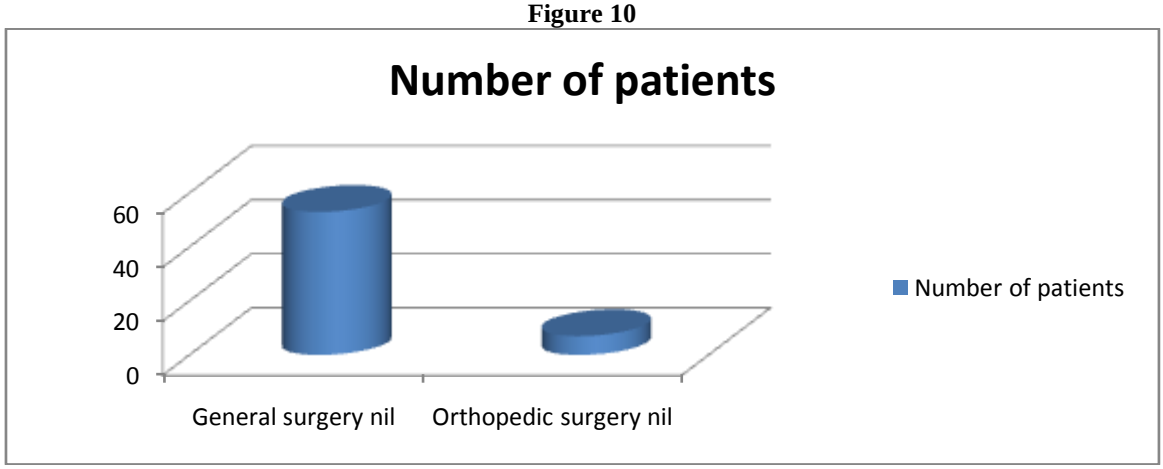
Distribution based on surgical site infection

The correlation between administration of prophylactic antibiotic and surgical site infection is studied and the results are shown in table 9

Table 10

S. no	Type of surgery	Number of patients	Patients Received Prophylactic antibiotics	Patients with SSI
1	General surgery	53	53	0
2	Orthopedic surgery	7	7	0

Figure 10



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IV. DISCUSSION:

In this study, a total of 60 post-operative patients were selected. The age wise distribution data consists of (0 – 20) 20% patients , (21 – 40) 31% patients,(41 – 60) 37% patients ,(61 – 80) 12% patients. Gender wise data includes 43(72%) patients was identified as male and 17(28%) patients were identified as female. In this study orthopaedic patients are low in number 7(12%) compared to general surgery patients 53(88%).

Pain perception had noted using Wong baker scale from post-operative day 1. The general surgery patients experience a low pain score than compared to the orthopaedic patients. The reason for low pain perception is the use of Combination therapy analgesics and the surgeon's skills (time needed to go in and out of the field). The maximum pain recorded in general surgery patients was 3 and the maximum pain recorded in orthopaedic patients was 4.

Among 60 patients 40 patients were treated with combination analgesics and 20 patients were treated with mono-therapy analgesics. Patients treated with combination therapy analgesics had show better satisfactory effects than compared to patients treated with mono-therapy analgesics. For prophylaxis of surgical site infection Cephalosporin's were preferred as a antibiotics among that Ceftriaxone (40%), followed by Cefuroxime (37%) respectively . Despite of the type of surgery weather is it is clean or contaminated. All the patients undergone a surgery were treated with prophylactic antibiotics to reduce the rate of surgical site infection. Among 60 patients all the patients were treated with prophylactic antibiotics and none of them had developed with surgical site infection.

V. CONCLUSION

Perception of pain has been studied using wong baker faces pain rating scale after the administration of analgesics on the post-operative follow up. In Comparison between general surgery and orthopaedic surgery, orthopaedic post-operative patients had more pain, than general surgery patients. Combination therapy of Pentazocine and Diclofenac injection had more success in pain relief compared with Diclofenac injection mono-therapy in this particular study. Antibiotics prevent the surgical site infection in both general and orthopaedic surgery. 100% prevention of surgical site infection after surgery by prophylactic antibiotics has been found in this study

Acknowledgement

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REFERENCE

[1]. Roger Chou, Debra B. Gordon, Oscar A. de Leon-Casasola Guidelines on the Management of Postoperative Pain The Journal of Pain, Vol 17, No 2 (February), 2016: pp 131-157.

[2]. Veerabhadram Garimella, Christina Cellini Postoperative Pain Control Clin Colon Rectal Surg 2013;26:191–196.

[3]. Srinivasa b. Aruna bhushan drug utilization of analgesics in post-operative orthopaedic inpatients in tertiary care hospital, belagavi: a prospective observational study 08/12/2019 ejpmr, 2020,7(1), 333-337

[4]. Faisal Mahama 1 and Jerry P. K. Ninnoni Assessment and Management of Postoperative Pain among Nurses at a Resource-Constraint Teaching Hospital in Ghana doi.org/10.1155/2019/9091467 Volume 2019.

[5]. Gregory Garra, Adam J Singer, Anna Domingo, Henry C Thode Jr The Wong-Baker pain FACES scale measures pain, not fear 2013 Jan;29(1):17-20. doi: 10.1097/PEC.0b013e31827b2299

[6]. Michael a. E. Ramsay acute postoperative pain management bumc proceedings 2000;13:244–247

[7]. Germano De Cosmo, elisebetta congedo The Use of NSAIDs in the Postoperative Period: Advantage and Disadvantages November 23, 2015 Volume 3 Issue 4 - 2015.

[8]. Brenda Nachiyunde, Louisa Lam The Efficacy of Different Modes of Analgesia in Postoperative Pain Management and Early Mobilization in Postoperative Cardiac Surgical Patients: A Systematic Review October 13, 2020, IP: 223.228.142.142

[9]. WHO Department Of Service Delivery And Safety (Sds) Antibiotics Of Choice For Surgical Antibiotic Prophylaxis Eml Guidance On Sap, Final Version.

[10]. Margot E Cohen, Hojjat Salmasian, Jianhua Li Surgical Antibiotic Prophylaxis and Risk for Postoperative Antibiotic-Resistant Infections Am Coll Surg. 2017 November ; 225(5): 631–638.e3. doi:10.1016/ j.jam collsurg. 2017.08.010.

[11]. Desye Misganaw, Bedilu Linger, Atinkut Abesha Surgical Antibiotic Prophylaxis Use and Surgical Site Infection Pattern in Dessie Referral Hospital, Dessie, Northeast of Ethiopia Volume 2020, doi.org/ 10.1155/ 2020/1695683.
[12]. Neeta Sawhney, Vineeta Sawhney, Vijay Khajuria Prescribing pattern of antibiotics among postoperative patients admitted in gynaecology and obstetrics department of tertiary care hospital in Northern India doi.org/10.18203/2319-2003.ijbcp20200180.
[13]. Rohit Mahesh Sane * Savita Ramesh Shahani, Ashok Allappa Kalyanshetti Antibiotic Prescription Pattern in SurgicalWards of MGM Hospital,Kamothe 2018 January; 5(1):e57914. doi: 10.5812/ iji.57914.
[14]. Fernando Souza Lopes, Anaisa Caparroz Duarte, Pablo Braga Gusman Evaluation of the knowledge of postoperative pain among participants of a virtual scientific journey in Anesthesiology Rev Dor. São Paulo, 2016 apr-jun;17(2):111-6.
[15]. Saba Zia Butt, Mobasher Ahmad, Hamid Saeed Post-surgical antibiotic prophylaxis: Impact of pharmacist' seducational intervention on appropriate use of antibiotics Journal of Infection and Public Health 12 (2019) 854–860