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Original research article

CLINICAL PROFILE OF PATIENTS WITH POSTOPERATIVE WOUND INFECTIONS

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Abstract

Wounds were treated by the physicians who were also surgeons in ancient times. They had recognized that surgical manipulation, infections and wounds were to have an interplay. They used to treat on the basis of trial and error and by individual physicians' experience. However, many forms of effective therapy that varied for different cultures were discovered progressively. This work involved the study of 100 patients who underwent various surgeries. All the surgeries in the study were elective cases and all the patients subjected to this study were healthy individuals with a general work up. The study group of 100 patients was randomly selected and split into two groups. Group A comprising 49 patients who received a prophylactic single dose of ceftriaxone (broad-spectrum cephalosporin); Group B comprising of 51 patients and who received no such prophylactic antibiotic. As seen above male: female ratio was almost 3: 1. There were 26% of females who underwent surgery as against 74% of males. Highest numbers of patients were in the age group of 21-30 years, 36.5% in males and 61.5% in females.

Keywords: Postoperative wound infections, wound swabs, surgical wound

Introduction

In the approach to the management of postoperative wound infection certain terminologies should be clearly defined. This helps in effective and rational management of the condition. The Society for Hospital Epidemiology of America, The Association of Practitioners in Infection control and the Surgical Society of Infections Task Force defined surgical wound infections in 1992. Later the term "Surgical wound" was internationally replaced as "Surgical Site". A surgical site includes infections arising after a surgery from organ spaces deep to the skin and soft tissues such as peritoneum and bone [1, 2].

Wounds were treated by the physicians who were also surgeons in ancient times. They had recognized that surgical manipulation, infections and wounds were to have an interplay. They used to treat on the basis of trial and error and by individual physicians' experience. However, many forms of effective therapy that varied for different cultures were discovered progressively.

Sushrutha, "The Father of Indian Surgery" had emphasized on the "prevention" of

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wound infection in his ancient scripts. Similarly ancient Egyptians recognized some form of circulation of the blood based on the doctoring of wounds: In addition, some primitive remedies such as the use of pulverized malachite or honey in wounds may have been effective, as noted by the modern day experiments of Manjo. Greeks and Romans had used red wine, herbs which may have had antibacterial property. The practical source of belief in "laudable pus" is likely based on the fact that only living patients produce pus [3, 4].

Methodology

During this period 100 cases were selected at random for our study purpose, all of which were clean elective surgeries done with meticulous surgical technique.

Inclusion criteria

- All cases in the age group of 18 to 60 years including both sexes.
- All elective cases of surgery.
- All clean cases of surgery e.g. hernias, varicose veins etc.

Exclusion criteria

- Paediatric age group.
- Geriatric age group.
- All emergency surgeries.
- All clean-contaminated, contaminated and dirty cases, abscesses, hollow viscus perforation. e.g. intraabdominal

This work involved the study of 100 patients who underwent various surgeries. All the surgeries in the study were elective cases and all the patients subjected to this study were healthy individuals with a general work up.

The study group of 100 patients was randomly selected and split into two groups.

Group A comprising 49 patients who received a prophylactic single dose of ceftriaxone (broad-spectrum cephalosporin); Group B comprising of 51 patients and who received no such prophylactic antibiotic.

The patients were split into two groups, taking considerations of the type of surgeries, the age of the patients and other associated medical problems, all of which were represented in both groups almost equally and a comparative clinical study was made.

On admission to the hospital, a detailed proforma was completed, which included history taking, clinical examination, diagnosis, preoperative investigation, meticulous surgery and postoperative care. All the cases were followed up until suture removal and the data was entered in the proforma. Wound swabs were sent for culture and sensitivity in all the cases on postoperative 3rd day and the results were compared and studied.

A detailed history was ascertained and entered in the proforma. A detailed previous history was recorded. Past history of taking any drugs, antibiotics and any history of previous hospitalization, associated illness, habits and diet were recorded in detail. Any significant family history was also recorded.

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Results

Table 1: Age-gender distribution

Age in years	Male		Female		Overall
	Number	%	Number	O/o	
Less than 20	2	2.7	3	11.5	5
21-30	27	36.5	16	61.5	43
31-40	18	24.3	6	23.1	24
41-50	23	31.1	1	3.8	24
>50	4	5.4	-	-	4
Total	74	100.0	26	100.0	100
Mean ± SD	35.76±9.80		28.50±6.79		33.87±9.63

As seen above male: female ratio was almost 3: 1. There were 26% of females who underwent surgery as against 74% of males. Highest numbers of patients were in the age group of 21-30 years, 36.5% in males and 61.5% in females.

Table 2: Distribution of Diagnosis

Diagnosis	Number (n=l00)	%
Appendicitis	34	34.0
Inguinal hernia	23	23.0
Cholelithiasis	17	17.0
Varicose veins	6	6.0
Lipoma	4	4.0
TAO	4	4.0
Cervical lymphadenopathy	3	3.0
Fibroadenoma	3	3.0
MNG	2	2.0
Varicocele	2	2.0
Epigastric hernia	1	1.0
Incisional hernia	1	1.0

Table 3: Preoperative administration of antibiotics

Preoperative administration of antibiotics	Number (n=lOO)	%
No	51	51.0
Yes	49	49.0

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Table 4: Type of Surgery

Type of Surgery	Number (n=l00)	%
Anatomical repair	2	2.0
Appendicectomy	34	34.0
Cholecystectomy	17	17.0
Excision	10	10.0
Flush ligation	6	6.0
Jemiorraphy	23	23.0
Lumbar Sympathectomy	4	4.0
Thyroidectomy	2	2.0
Varicocelectomy	2	2.0

Discussion

Postoperative wound infection has been the greatest obstacle to the advancement of surgery down the centuries. Lister introduced antiseptic methods for safe surgery. The advent of antibiotics did raise the hope of a permanent solution to this problem, but later it has become the nightmare of the surgeon. Many considered and still now consider an antibiotic as "wonder drug" which could cover their lapses in surgical techniques and asepsis. Over reliance on antibiotics led to their extensive and often indiscriminate use resulting in development of resistance by various organisms and the problem of "hospital infection" has troubled us [5, 6].

Anti-bacterial agents administered as early as three hours after experimental contamination of wound, have no influence on the infection rate of postoperative wounds. If the body already has adequate antibiotic concentration at the time of contamination, infection can be adequately prevented [7].

Early trials of prophylactic anti-microbial agents have often failed to show efficacy in preventing surgical wound infection, because the antibiotics were given after surgery was completed. In a study, done by Polk and Lapex Mayor showed that, preoperative and postoperative administration of cephaloridine, in which there was a significantly lower rate of surgical wound infection in patients who received the drug preoperatively [8].

As seen from NNISS data, the accepted infection rate should be for clean cases 2.1%, clean contaminated cases 3.3%, contaminated cases 6.4% and dirty cases 7. 1%.

What has been observed in this study is that a single dose of preoperative antibiotic prophylaxis can be more effective than a postoperative 5 day course of treatment which is followed.

Use of prophylactic antibiotic in clean contaminated cases are well advocated, but it is still controversial in clean cases.

Conclusion

- In selecting an antibiotic for a particular operation one should consider the pathogen likely to cause infection in the procedure planned.
- Various drug interactions, allergic reactions and bacterial resistance can be prevented by using a high dose single shot prophylactic antibiotic.

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- Meticulous surgical technique should be practiced and undue delay 111 the procedure should be avoided to prevent postoperative wound infection.
- Timing of administration of prophylactic antibiotics is critical. The drug should be administered ideally within 30 min and certainly within 2 hours of time of incision.

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