

PROPHYLACTIC ANTIBIOTICS IN GYNAE MAJOR SURGERY

BATRA S. ● TEMPE ANJALI ● NAIR S. ● POONAM

SUMMARY

25 consecutive cases of major Gynaecological surgery were included in Group I and these were given Ampicillin 500 mg 6 hourly after test dose and Garamycin 80 ml I.m B.D. for 7 days starting postoperatively as is the present practice. Group II included subsequent 25 cases who were given Sulbacin 1.5 gm I.v. half hourly before surgery and repeated after 6 hours. Cases in which indwelling catheter was left overnight received two postoperative injections 6 hours apart.

Incidence of wound induration and vaginal discharge in group I and II respectively was 8% versus nil and 16% versus nil. Although febrile morbidity in both groups is same (8%) inflammatory tissue response following surgery is reduced remarkably ($p < 0.05$) in sulbacin group (Group II). Incidence of U.T.I., Secondary haemorrhage, adverse reactions and thrombophlebitis in group I versus II was 8% versus 4%; 4% versus nil; 4% versus nil; nil versus 8% respectively. Sulbacin prophylaxis is safe, effective, convenient and saves manpower thus preventing irregularity in administering drugs which is likely in busy centres and can easily replace the 7 days extended use of drugs.

One of the most common complications of surgery is infection. This infection could be due to invasion of

damaged tissue by organisms harboured by the patient or due to or cross infection from other patients; or due to faulty aseptic technique. In spite of various precautions taken by hospital staff and surgeons, infections do take place com-

Dept. of Obst. & Gyn. Maulana Azad Medical College, LNJP Hospital, New Delhi.

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plicating healing.

The most common method to control infection in the post-operative period is by the use of preoperative and post-operative antibiotics. Of the antibiotics with the widest spectrum available today, one of the safest is Sulbacin (Ampicillin + Sulbactam) & Stiglamayer Senft (1986) reported achieving a higher bacteriological cure with it than with cefoxitin. Gunning (1986) has also reported that Sulbactam + Ampicillin is more effective than Clindamycin and Genta-mycin. Surgical infections involve anaerobes, aerobes or facultative organisms. Production of β Lactamase is the commonest reason for their resistance to lactum antibiotics. Sulbactam an irreversible lactamase inhibitor along with ampicillin offers a unique concept in treatment of polymicrobial infections.

AIMS AND OBJECTIVES

- (1) To assess the effectiveness of sulbacin in controlling infections.
- (2) To reduce the total requirement of antibiotics in major surgery cases, thus reducing the cost of treatment.
- (3) To compare it with Ampicillin and Gentamycin combination which is being used presently for 7 days post-operatively.

MATERIAL AND METHODS

The study was carried out in the Department of Obstetrics and Gynaecology, Maulana Azad Medical College and Associated LNJP Hospital, New Delhi. Fifty cases fit for Surgery and anaesthesia for elective Gynaec Major surgery were included in the study. High

Risk cases of heart disease, diabetes and endocrine problems were excluded. The cases were divided into two groups.

Group I consisted of 25 consecutive cases who had undergone elective surgery earlier and were given Ampicillin 500 mg 6 hourly after test dose i.m./orally and garamycin 80 mg i.m. B.D. for 7 days starting postoperatively (current practice).

Group II included subsequent 25 cases who were given Sulbacin (Ampicillin + Sulbactam, 1.5 G) after testing for Ampicillin sensitivity, 1.5 gms of Sulbacin was given I.v half hour before surgery and was repeated 6 hours after first injection. Cases who had indwelling catheter overnight (vaginal surgery cases) had two doses of sulbacin postoperatively 6 hours apart.

Postoperative outcome by noting temperature, wound status, complications and any adverse effects were compared in these two groups.

OBSERVATIONS

Group I cases were in the age range of 22 to 65 years. The type of surgery performed is shown in Table I.

In Group II age ranged from 20 to 64 years. Table II shows the type of surgery performed.

Table III compares the postoperative complications in the two groups. Two cases in Group II had to be given sulbacin for 5 days at 6 hourly interval I.v./I.m injections. One case had respiratory problem in the form of consolidation of the lung, gentamycin 80 mg I.m. B.D. was therefore supplemented. The second case had low grade temperature

Table I

Type of Gynaec Surgery

Group I (Ampicillin + Garamycin)
(n 25, Age Range 22 - 65 years)

Abdominal hysterectomy	13
Laparotomy	2
Haultain's	1
Recanalization	1
Vaginal hysterectomy with repair	7
Manchester	1

Table II

Type of Gynaec Surgery

Group II (Sulbacin)
(n 25, range 20 - 64 years)

Abdominal hysterectomy	3
Laparotomy	3
Vaginal hysterectomy with repair	8

from 99-100° F lasting for 3 days. No change of antibiotic was instituted in this case. Both cases had mild thrombophlebitis in the arm as intracath was left for 48 hours.

Table III

Observations in Two Groups

Nature of Complication	Group I	Group II
Temperature	2 (8%) high grade change of antibiotics	2 (8%) high grade one addition of garamycin. Mild in one, No change of antibiotics, extended use.
Urine Culture 2 (8%)	1 - Ecoli 1 - Citrobacter	1 (4%) Klebscilla (10) ² insignificant
Wound induction	2 (8%)	Nil
Vaginal discharge (in vaginal surgery group)	4/25 (16%) corrected 4/8 (50%)	Nil p < 0.05 significant
Secondary haemorrhage	1 (4%) (mild, no transfusion required)	Nil
Adverse reactions	1 (4%) (diarrhoea)	Nil
Thrombophlebitis	Nil	2 (8%) Mild in both cases, (? due to intracath left for 48 hours)

Incidence of wound induration and vaginal discharge in Group I and II respectively was 8% versus nil. Although febrile morbidity in both groups has been similar (8%), inflammatory tissue response following surgery is reduced remarkably in Sulbacin group (Group II). Incidence of UTI, secondary haemorrhage, adverse reactions and thrombophlebitis in group I versus II have been compared in Table III. Sulbacin prophylaxis is safe, effective, convenient and saves manpower thus preventing irregularity in administering drugs which is likely in busy centres and can easily replace the 7 days extended use of drugs.

DISCUSSION

Gynaecological procedures like hysterectomies with their proximity to vagina which is a reservoir of potential pathogens, carry significant risk of infectious morbidity. Burke (1961) gave antibiotics prophylaxis on scientific basis when he demonstrated in animal studies that timely administration of synthetic penicillin could markedly reduce the effects of intradermal inoculation of staphylococcus aureus. Since then there have been many studies investigating the use of a variety of agents in antibiotic prophylaxis for different surgical procedures. Cartwright et al (1984) stated that operative site infection rates following vaginal hysterectomy group fell from 30-40% to 1-10% on average, whereas following abdominal hysterectomy less than 1/3rd of 16 studies demonstrated a decrease in pelvic cellulitis and wound infection, although febrile morbidity and U.T.I. were reduced by half. Hirsch (1985)

reviewed all placebo controlled studies for 1983 and showed a decrease in pelvic sepsis from 25% to 5% following vaginal hysterectomy and from 15% to 10% following abdominal hysterectomy.

Different antibiotics have been used for prophylaxis like cotrimoxazole, metronidazole, ampicillin, augmentin, amoxicillin, penicillin, carbenicillin, piperacillin, gentamycin and second and third generation cephalosporins.

To overcome aerobes and anaerobes cephalosporins and penicillin have been used in combination with metronidazole and more recently Augmentin with increased β lactamase stability and wide spectrum against aerobic gram positive cocci and anaerobic bacilli. Brown et al (1988), showed significantly less infective morbidity following augmentin prophylaxis than after metronidazole for hysterectomy. There is now good evidence that single dose prophylaxis given just before surgery confers as much protection against postoperative sepsis as do more prolonged courses. Hemsell et al (1987) summarised the benefits of single dose therapy as follows : (1) less expensive (2) less likely to encourage development of resistant bacteria (3) uses less nursing and pharmacy resources (4) less likely to cause toxicity and allergic reactions. Extended courses can be kept for cases requiring prolonged surgical procedures and in those having catheterisation postoperatively.

In the present study short course of prophylactic single antibiotic, sulbacin has been documented to be more effective in controlling tissue inflammatory response when started preope-

ratively as compared to traditional use of extended two drug combinations (Ampicillin + Gentamycin) postoperatively.

The introduction of β lactamase is a problem more common with use of second and third generation cephalosporins and is produced by many gram positive and negative organisms. It is now the most important mechanism of bacterial resistance and induction of such enzymes could present considerable difficulties in the treatment of post prophylaxis infections. The potential complications of antibiotic therapy can also be minimised by shorter use of drugs for this purpose. Sulbacin which contains sulbactam an irreversible β lactamase inhibitor along with ampicillin offers unique concept in treatment of polymicrobial infections.

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