COMPARISON OF INTRAPERITONEAL VERSUS INTRAVENOUS / ORAL ADMINISTRATION OF METRONIDAZOLE IN OBSTETRICAL AND GYNAECOLOGICAL SURGERY

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SUMMARY

A comparative study of intraperitoneal versus intravenous / oral administration of metronidazole has been carried out in 100 cases each of obstetrics and gynaecological surgery and the incidence of post-operative complications like fever, wound infection, abdominal distension, postoperative vomiting, peritonitis, wound gaping, drug side effects and hospital stay etc. have been compared.

There was no significant difference in postoperative complications whether intraperitoneal or I.V / Oral metronidazole was given. However, side effects to metronidazole were not seen when given intraperitoneally, whereas nearly 81% of patients given I.V. / Oral metronidazole complained of metallic taste, anorexia, nausea and vomiting.

Considering the price and side effects of metronidazole in I.V. / Oral cases, it is suggested to use metronidazole intraperitoneally.

INTRODUCTION

Recent reports show that metronidazole is highly active against a wide range of anaerobic bacteria in vitro (Davis et al, 1964, Fuzi & Csukas 1970; Whelan & Hale 1973). In a comparative study with Penicillin G, Chloramphenicol, Tetracycline, Erythromycin, Vancomycin and Metronidazole against anaerobic organisms most commonly

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encountered in clinical infection, it was reported that only metronidazole had complete and consistent bactericidal activity against the anaerobes at a concentration easily attainable in the serum (Finegold & Sutter, 1972). There are many reports of prophylactic use of metronidazole in obstetrical and gynaecological surgery. (Willis et al, 1974; Chakraborty and Addy et al, 1978).

Usually, metronidazole is given orally or intravenously. Lately, metronidazole has also been tried intraperitoneally at the end of an operation (Dubey & Kapoor, 1984 and Samal & Sambrey, 1987).

This study was conducted to compare the effectivity of intraperitoneal metronidazole with intravenous / oral metronidazole in gynaecological and obstetrical surgery.

MATERIAL AND METHODS

The present study was conducted in the Departments of Obstetrics and Gynaecology and Microbiology, Medical College, Amritsar. A total number of 200 cases undergoing gynaecological and obstetrical surgery were studied. One group of 100 cases were given 500 mg metronidazole intraperitoneally at the end of operation. Of these, 52 had undergone gynaecological surgery while 48 had caesarean delivery.

The second group of 100 cases were given 500 mg of metronidazole I.V. for the first 48 hours and subsequently 400 mg t.d.s. orally for another 5 days. Of these, 49 cases were of caesarean section and the remaining were of gynaecological surgery. Both the groups were given routine prophylactic antibiotics in their postoperative period.

On the 5th day, the dressing was changed and the swab was taken. The swab was inoculated within half an hour on blood agar and incubated for 48 hours at 37^{0}C in McIntosh-Fildes Jar for isolation of anaerobes. If there was any growth on blood agar, then gram staining was done. Aerotolerance was done to confirm the anaerobic growth (Collie, 1989).

The incidence of postoperative complications like fever, wound infection, abdominal distension, post-operative vomiting, peritonitis, paralytic ileus, wound gaping, burst abdomen, drug side effects and hospital stay was compared in both these groups.

Febrile morbidity was defined as a temperature of 38^{0}C or greater (taken orally) on two occasions atleast six hours apart excluding the first 24 hours post operatively. Hospital stay was calculated by including the day of surgery and excluding the day of discharge.

OBSERVATIONS

The various types of surgery in gynaecological cases and indications of caesarean section are given in Table I and II.

The incidence of various postoperative complications is shown in Table III.

There was no significant difference in post-operative complications whether intraperitoneal or I.V. / oral metronidazole was given. However, side effects to metronidazole were not seen when given intraperitoneally, whereas nearly 81% of the patients given intravenous / oral metronidazole complained of metallic

Table I

Type of Surgery in Gynaecological Cases

Operations	Intraperitoneal metronidazole Group A	I.V / Oral metronidazole Group B
Abdominal hysterectomy (for fibroid, DUB and others)	39	38
Cystectomy	3	5
Exploratory laparotomy (Malignant ovarian tumour)	2	1
Exploratory laparotomy (ectopic pregnancy)	5	6
Hysterectomy	3	1
Total	52	51

Table II

Indications for Caesarean Section

Indication	Intraperitoneal metronidazole Group A	I.V / Oral metronidazole Group B
C. P. D. (Cephalopelvic disproportion)	5	3
Previous caesarean section (Previous one, previous two)	26	25
Foetal distress	8	10
Complicated breech	1	3
Placenta praevia	2	4
Transverse lie	2	—
Prolapsed cord	—	—
Ruptured uterus	2	1
ETP failure to progress	2	3
Total	48	49

Table III

Postoperative Complications

Complication	Gynaecological cases		Obstetrical cases	
	Intra-peritoneal metronidazole 52 cases	I.V / Oral metronidazole 51 cases	Intra-peritoneal 48 cases	I.V / Oral metronidazole 49 cases
Fever more than 380C	11.5%	1.37%	14.5%	12.2%
Abdominal discharge from the wound	15.4%	15.7%	18.7%	18.4%
Gaped wound	3.8%	3.9%	4.2%	4.1%
Paralytic ileus	1.9%	—	—	2.04%
Burst abdomen	1.9%	—	—	2.04%
Hospital stay more than 15 days	3.80%	1.9%	2.08%	4.1%
Drug side effects	—	78.4%	—	83.6%

taste, anorexia, nausea, vomiting. In three cases vomiting was so severe that the drug had to be withdrawn.

DISCUSSION

Prophylactic antibiotics have been shown to decrease morbidity due to anaerobic organism in post-operative cases. There are several important ramifications of this decrease in morbidity. This decrease is not only beneficial to the patient because of improved physical and psychologic well being but it represents a cost savings from a purely economic stand point also. The antibiotics used to treat established infections are also in general more toxic than those for prophylaxis.

The benefits of prophylaxis against anaerobic infection can be accomplished with many different antibiotics and now with different modes of administration of these antibiotics. This study was designed to compare the effects of intraperitoneal administration of metronidazole with I.V / oral administration of metronidazole in obstetrical and gynaecological surgery.

From the above analysis, it is seen that there is no significant difference in post-operative complications whether intraperitoneal or I.V/Oral metronidazole is given. However, side effects to metronidazole are not seen when given intraperitoneally, where as nearly 81% of the patients given I.V/Oral metronidazole complained of metallic taste, anorexia, nausea and vomiting. In three cases vomiting was severe that the drug had to be withdrawn.

As there is not significant difference in post-operative complications, there are no side effects of intraperitoneal metronidazole and it does not require any extra nursing care, we feel that metronidazole should be given intraperitoneally rather than I.V/Oral. This will also reduce the cost of therapy and achieve a better patient compliance.

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