Prophylactic Intravenous Ciprofloxacin in Major Gynaecological Surgery

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Summary: Parenteral prophylatic two doses ciprofloxacin (Quiniolone derivative) along with intraoperative and postoperative administration of metronidazole was studied in 150 cases requiring major gynaecological surgery and compared with 100 cases of controls who received Ampicillin, Gentamycin and Metronidazole post-operatively without prophylactic antibiotics.

Intraoperative and postoperative morbidity in these cases was evaluated. Postoperative minor morbidity (fever, distension, vomiting and stitch abscess) was observed in 64 % of study group as compared to 86% in control group. Flushing was observed in 4 cases in study group as against nil in control group. Major side effects requiring resuturing was 2% in control group, whereas it was nil in study group. There was prolongation of hospital stay in the study group. Mean hospital stay in the study group was nine days whereas it was 11.8 days in control group. Prophylatic ciprofloxacin has been found to be the effective monotherapy. It can be safely and effectively used as prophylaxis in major gynaecological surgery.

Introduction:

There has been a constant search for antibiotic agent for prophylaxis of infection of female genital tract surgery and in many situations a first generation agent is recommended. There have been few reports on the use of prophylactic intravenous ciprofloxacin for treatment of difficult to treat infections. (Giamarellou et al 1987).

Ciprofloxacin is a quinolone antimicrobial agent which is available in oral and parenteral forms. We conducted a clinical trial to evaluate the risk benefits of prophylaxis with the use of the drug ciprofloxacin in major gynaecological surgery.

Pharmacokinetics

Ciprofloxacin can induce rapid killing and a significant postantibiotic suppresive effect in a number of bacterial species in vitro (Chin et al 1987).

Prominent adverse effects are nausea, vomiting and diarrhoea. Occasionally headache, dizziness, insomnia, abnormal liver function tests, or skin rashes develop. Superinfection with streptococci and candida has been observed.

Material and Methods

This prospective study included 150 cases requiring major gynaecological surgery in the department of Obstetrics and Gynaecology, MGIMS Sevagram

One hundred ml. of intravenous ciprofloxacin (200mg Cifran-Ranbaxy) was infused to all the patients just 10 minutes before the anaesthesia. The drug was repeated 12 hours after surgery. Metronidazole(100ml=500mg) was instilled at the end of surgery before closure of abdomen, but metronidazole was not instilled in vaginal surgeries. Following 12 hours of surgery only metronidazole was used 400mg, 8 hourly for seven days without additional antibiotic.

The control cases did not receive the prophylactic ciprofloxacin but had postoperative Ampicillin 500mg iv, 6 hourly, and Gentamycin 80mg.im-12 hourly and metronidazole 8 hourly for 7 days.

Cases were evaluated for fall of B.P. flushing, or any other side effects and following surgery for fever, vomiting, abdominal distension, wound induration, discharge (abdominal as well as vaginal) and wound gaping.

Results And Discussion

Mean age of patient of study and control group was 35.2 years. The minimum age being 22 years and maximum 65 years.

Indications of cases are depicted in Table-1. Abdominal hysterectomy was done in 108 cases (72%), abdominal hysterectomy with colporraphy in 4 (2.67%),vaginal hysterectomy in 37 (24.67%), abdominal myomectomy in 1 case (0.67%), tuboplasty in 3 (2%) and exploratory laparotomy in 7 cases (4.67%). Indications for abdominal hysterectomy were fibroid uterus, postmenopausal bleeding, chronic cervical erosion, chronic P.I.D, DUB and Ovarian tumour.

Table I

Types Of Major Surgeries In Study And Control Group

Surgery	No. of Cases N=150		Control N=100	
	No.	%	No.	%
Abdominal hysterectomy	108	72	76	76
Abdominal hysterectomy with colporraphy	04	2.67	1	1
Vaginal hysterectomy	37	24.67	17	17
Abdominal myomectomy	1	0.67	-	-
Tuboplasty	3	2	-	-
Exploratory laparotomy	7	4.67	6	6

Indications of exploratory laparotomy are depicted in Table II, which shows 2 cases (1.33%) of both ectopic pregnancy and tubovarian mass and one case each, of septic abortion, Koch's abdomen and ovarian cyst. Similar type of cases were selected for the control.

Table II

Indications for Exploratory Laparotomy In Study And Control Group.

Indication	No. of cases N=150		No. of cases N=100	
	No.	%	No.	%
Septic abortion	1	0.66	1	1
Tuboovarian mass	2	1.33	1	1
Ectopic pregnancy	2	1.33	2	2
Koch's abdomen	1	0.66	-	-
Ovarian cyst	1	0.66	2	2

Operative and postoperative morbidity with ciprofloxacin in the present study were observed in 64% whereas in control group it was 86%. (Table III).

Table III

Analysis Of Cases For Intraoperative And Postoperative Morbidity

Morbidity	No. of cases N=150		No. of cases N=100	
	No.	%	No.	%
Fever	29	19.33	16	16
Vomiting	15	10	14	14
Distension	3	2	8	8
Rash	2	1.33	2	2
Flushing	4	2.66	2	2
Discharge from wound	14	9.33	14	14
Induration	12	8	18	18
Stitch abscess	11	7.33	10	10
Gaping requiring resuturing	-	-	2	2
Total	96	64	86	86

The main complications were fever, vomiting, distension, flushing and rash in 19.33%, 10%, 2%, 2.66% and 1.33% respectively in the study group. The wound discharge, induration and stitch abcess were seen it 9.33%, 8% and 7.33% respectively. In control group, distension, wound induration and discharge was in 8%, 18% and 14% respectively (Table III).

Of the study group 10% developed vomiting, 2.66% had flushing over face, 1.33% developed oedema with rash, but they were immediately managed with injectable chlorpheniramine maleate and dexamethasone.

The study cases, where distension was mild did not require Ryle's tube aspiration and could tolerate oral fluids after 24 hours as compared to control group who required Ryle's tube aspiration ranging from 2-4 days. Our observation stressed that the instillation of intraperitoneal metronidazole definitely reduced the postoperative abdominal distension (Samal and Sambrey –1987). It was observed that ciprofloxacin was a relatively non-toxic antibacterial. Most adverse reactions were minor and transient like nausea, headache and rash. Hypersensitivity was not detected in any single case and cross drug allergy with B-lactams was not observed.

Post-operatively an indwelling catheter was maintained for 24-48 hours, but on culture UTI was not detected, none of the patients had vaginal discharge or bleeding while 5% cases of control group showed positive culture in urine, sensitive to ciprofloxacin, similarly the swab culture of stitch abscess and gaping cases were positive to ciprofloxacin in all cases.

Patients of study group were discharged within 8 days of operation, whereas in control group cases average stay was 12 days. Of control group 2 cases required resuturing because of wound dehiscence whereas in study group none required resuturing.

The present study shows that 2 doses of ciprofloxacin with metronidazole for 7 days is highly beneficial for preoperative prophylaxis in cases of major gynecological surgeries.

Ciprofloxacin is effective monotherapy and is even tolerated in higher doses. Further clinical trial is needed to establish its most effective dose efficacy when used in combination with metronidazole.

References

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