

METRONIDAZOLE IN POST-HYSTERECTOMY (VAGINAL) MORBIDITY

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SUMMARY

The data presented demonstrates the effect of metronidazole to control the post-operative anaerobic infections. Its role as a prophylactic agent is being explored. The efficacy of this drug in the anaerobic infections of the upper genital tract is being established by a number of recent studies.

Introduction

Post-operative infection may be endogenous or exogenous. The endogenous bacteria are not completely eliminated from the cervix and vagina inspite of meticulous antiseptic vaginal preparation. It is well known that the non-sporing anaerobes may cause vaginal infection during the period of stress. Most of these anaerobes are commensals of vagina and cervix but in suitable conditions—breach of the mucosa, tissue necrosis, blood loss, malignancy, irradiation they cause specific infection. Among all the anti-bacterial agents against anaerobes, metronidazole alone has been proved to be effective at serum concentrations which are easily attainable. This drug is virtually non-toxic and free from any serious side effects in humans.

Material and Methods

A retrospective 10 years data from Deptt. of Gynaecology, J.J. Hospital in Bombay is presented. All the patients subjected to vaginal hysterectomy with or without repair were included in this study.

A special effort was made pre-operatively to eliminate any infection when present. They were healthy individuals and there was no history of recent antibiotics medication. The routine pre-operative investigations were done and found to be normal. All operations were done in the postmenstrual phase. Routine anaerobic and aerobic cultures from genital tract in all the cases were not possible. However, in cases where there were post-operative problems, cultures were done and the indicated antibiotics used.

All the patients were given routine antibiotics in the post-operative period — Cry. Penicillin + Streptomycin or

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Ampicillin + Chloromycetin in their usual dosage. Metronidazole was added whenever indicated from 1981 onwards. 400 mgm. of metronidazole was given orally three times a day from the second post-operative day for 7 days. In a few cases during the later period of the metronidazole group (1981-1983), i.v. metronidazole (500 mgm) was used on the evening of the day of operation. (However the figures are too small to be of any significance), followed by oral medication the next day onwards.

Results

The results obtained on analysis of the 10 years records are given in the accompanying Tables. The patients admitted from 1981 onwards, are included in the metronidazole group and the patients of earlier years form the control group. Vaginal hysterectomy formed 50-60% of the total hysterectomies done over the 10 year period (Table I). Of the total vaginal hysterectomies, there was an equal distribution of patients who underwent a subsequent repair of perineum. (Table II). Genital prolapse, a potentially infected problem formed three-fourth of the indications and DUB another 10-15% of the indications for vaginal hysterectomy (Table III) in both

the groups. A high percentage of 60-65% of cases in all the 10 years were less than 45 years old and a maximum of 4.8% were more than 61 years old (Table IV).

TABLE I
Hysterectomies During 10 Years

Year	Total	Abd.	Vaginal
1974	242	122	120 (49.59%)
1975	255	111	144 (56.47%)
1976	214	139	184 (58.60%)
1977	250	124	126 (50.40%)
1978	227	103	124 (54.63%)
1979	224	116	130 (56.50%)
1980	259	117	142 (55.00%)
1981	302	126	176 (58.20%)
1982	376	163	213 (56.65%)
1983	291	127	164 (56.36%)

TABLE II
Analysis of Vaginal Hysterectomies

Year	Vag. Hyst.	Vag. Hyst. with repair
1974	67	53
1975	84	60
1976	106	78
1977	76	50
1978	64	60
1979	70	60
1980	70	72
1981	96	80
1982	87	126
1983	103	61

TABLE III
Indications for Vaginal Hysterectomy (With Percentages)

Year	Prolapse	DUB	Fibriod	Ch-Cx	Others	Total
1974	59 (49.2)	46 (38.3)	3 (2.5)	7 (5.8)	5 (4.2)	120
1975	78 (54.2)	48 (33.3)	5 (3.5)	10 (6.2)	3 (2.1)	144
1976	124 (61.4)	40 (21.7)	2 (1.1)	12 (6.5)	6 (3.3)	184
1977	94 (74.6)	23 (18.2)	3 (2.4)	4 (3.2)	2 (1.6)	126
1978	97 (78.0)	20 (16.5)	—	5 (3.9)	2 (1.6)	124
1979	80 (61.5)	30 (23.1)	10 (7.7)	6 (4.6)	4 (3.1)	130
1980	100 (70.4)	36 (25.4)	4 (3.8)	—	2 (1.4)	142
1981	120 (68.1)	40 (22.7)	4 (2.3)	8 (4.6)	4 (2.3)	176
1982	165 (77.5)	35 (16.4)	3 (1.4)	6 (2.8)	4 (1.9)	213
1983	130 (79.3)	24 (14.6)	3 (1.8)	5 (3.1)	2 (1.2)	164

TABLE IV
Age Analysis of Patients (Over all Percentages)

	1975	1975	1976	1977	1978	1979	1980	1981	1982	1983
<.30 Yrs.	5.8	4.5	7.6	6.4	5.6	7.2	6.0	5.2	5.6	6.4
31.35 "	24.5	22.6	17.9	19.3	20.4	17.6	19.2	23.4	19.5	18.9
36.40 "	26.5	25.9	27.2	27.5	28.6	24.0	26.5	24.0	25.5	27.5
41.45 "	15.7	17.6	19.0	18.7	20.0	22.0	15.3	18.0	21.0	17.5
46.50 "	10.3	13.9	13.6	12.2	10.7	12.5	14.0	13.0	10.1	15.0
51.55 "	6.5	4.6	2.7	3.9	4.2	6.0	5.5	5.6	6.4	3.6
56.60 "	7.2	7.1	8.1	7.7	6.9	8.4	9.0	7.2	8.4	8.0
>.61 "	3.7	3.6	3.8	4.2	3.6	2.7	4.5	3.5	4.5	3.9
	100.2	99.8	99.9	99.9	100.0	100.4	100.0	100.0	100.0	99.8

From Table V we can see that from 1981 with the regular use of metronidazole in the post-operative period the incidence of the various complications came down steeply. Febrile morbidity, persistent pain was seen in one-third of the patients when compared to the control group. Vaginal discharge esp. purulent, serosanguinous and haemorrhagic, were half those in control group. Wound complications Viz.—induration, abscess formation, giving way of stitches and secondary haemorrhage were also seen in

about half the patients seen in control group.

An attempt was made to find out if age of the patient had any relation with the subsequent morbidity. There was an increase of 10-15% in the various complications seen in the patients above 45 years. It is well known that the resistance of the mucosa to the various invading organisms is poor due to the hormonal status, the general resistance and the other associated systemic factors (Table VI).

TABLE V
Post Operative Complications—Local Complications

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
1. Fever	23%	20%	21%	18%	15%	18%	17%	10%	7.5%	6%
2. Persistent Pain	22%	25%	20%	17%	16%	15%	10%	12%	7.5%	9%
3. Vaginal Discharge	28%	25%	20%	24%	22%	18%	15%	18%	10%	12%
Serous	5%	5%	4%	6%	5%	7%	7.5%	6.5%	4.5%	5%
Purulent	12%	10%	10%	12%	8%	4%	3.0%	3.3%	3%	3%
Serosanguinous	3%	5%	4%	2%	6%	3%	2.5%	4.0%	2.0%	2%
Others	8%	5%	2%	4%	3%	4%	2.0%	4.0%	0.5%	2%
4. Wound Comp.	14%	12%	15%	10%	11%	12%	13%	7.5%	2.5%	4%
5. Others	2.0%	2.5%	2%	1.5%	1.8%	1.6%	8.0%	0.5%	—	—

TABLE VI
Age Vs. Postoperative Infection
Overall Incidence

	Fever	Persistent	Vag. Discharge	Wound complication
<30 yrs.	20%	20%	20%	6%
31-35 "	16%	12%	25%	8%
36-40 "	15%	16%	23.5%	12%
41-45 "	20%	20%	26%	10%
46-50 "	22%	18%	35%	12%
51-55 "	28%	20%	30%	18%
56-60 "	35%	18%	34%	22%
>61 "	33%	20%	36%	20%

Discussion

Genital prolapse is the commonest gynaecological complaint requiring surgery. Vaginal hysterectomy for the various indications formed more than 50% of total hysterectomies done in the 10 years period from 1974 to 1983 (Table I). Most of the patients were in the perimenopausal and postmenopausal age groups when hypertension diabetes mellitus, chronic respiratory problems frequently complicate the cases. In spite of adoption of strict asepsis and prophylactic use of antibiotics, post-operative sepsis still occurs in few cases. Post-operative infections are polymicrobial in origin (Allen *et al* 1972; Ledger *et al* 1973; Thadepalli *et al* 1973) and include both aerobic and anaerobic organism. Infection by anaerobic organisms are dependent upon presence of aerobic flora and prophylaxis being by reduction of aerobic to preclude infection by anaerobic organisms. Ingham *et al* (1977) have shown that the obligate anaerobes inhibit phagocytic property of the cell and thus indirectly give protection to aerobes. Metronidazole, by itself inactive against the aerobes, indirectly, helps to control their number by reduc-

ing the number of anaerobes and improving the phagocytic property of the cells and their subsequent phagocytosis.

Vaginal hysterectomy was done in almost 90% of cases for genital prolapse and dysfunctional uterine bleeding (Table III). It is well known that these are potentially infected cases and endogenous bacteria may not be eliminated in spite of meticulous asepsis. Post-operative complications like persistent pain, vaginal discharges of different types, wound complications and fever were seen in almost half to one-third the number of cases in the later group (Table V). Febrile morbidity was considered a temperature more than 100°F on two occasions on consecutive days excluding the first 48 hours after surgery. The incidence of secondary hemorrhage was dramatically reduced. The length of hospital stay, standard febrile morbidity and post-operative infections with need for supplementary antibiotic therapy in the later group, were thus reduced. However, we feel that the morbidity would have been further reduced if the drug was available earlier in the blood stream or a prophylactic dose was given before surgery thus reducing the tissue contamination during surgery.

Conclusion

The two groups of patients are well-matched for age, type of operation, indications for operation and other variables. Post-operative infection and bed occupancy were significantly less in the metronidazole group. However, better prophylaxis will be achieved by pre-operative administration of the drug. Metronidazole is a safe drug with no serious side effects and was well tolerated by our patients.

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References

1. Allen, J. L., Rampose, J. F. and Wheelless, C. R.: *Obstet. Gynec.* **39**: 218, 1972.
2. Ingham, H. R., Danka Tharagonnet, Penelope, Sisson Seikon and Codd, A. A.: *Lancet*, **1**: 1252, 1977.
3. Ledger, W. J., Sweet, R. L. and Headington, J. T.: *Am. J. Obstet. Gynec.*, **115**: 766, 1973.
4. Thadepalli, H., Gorback, S. L. and Keith, L.: *Am. J. Obstet. Gynec.* **45**: 117, 1973.