

## PROPHYLACTIC ANTIBIOTICS OR NO ANTIBIOTICS FOR ELECTIVE HYSTERECTOMY

by

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### SUMMARY

We prefer not to employ any form of antibiotic therapy for elective hysterectomies, and would prefer to carefully monitor the patient in the post-operative period. Pyrexia on 3rd day and after is an indication for a vaginal examination to drain the pelvic collection. This is all that will be needed to cure the patient and reduce the hospital stay. However, if still pyrexia persists it will be an indication for starting antibiotic therapy. This protocol gives excellent results in terms of minimal post-operative complications, minimal hospital stay and avoidance of severe septic morbidity.

### Introduction

Postoperative infection remains the most common complication of abdominal and vaginal hysterectomies. Much attention has been given to the value of prophylactic antibiotic therapy for control of infection. However, much controversy exists regarding prophylactic use of antibiotics for elective hysterectomy. Several well-controlled studies have documented reduction in febrile morbidity and certain types of postoperative infections (Allen *et al* 1972; Goodlin, 1974; Ledger *et al* 1973; Rosenheim, 1974;

Appelbaum *et al* 1978 and Hamod *et al* 1980) following prophylactic administration of Cephalothin, Cephaloridine, oral ampicillin, tetracycline and metronidazole. All the same Swartz and Tanaree (1975 and 1976) have dramatically reduced postoperative pelvic infection with nothing more than suction drainage of the retroperitoneal space in patients undergoing abdominal and vaginal hysterectomy. These authors suggest suction drainage might be an alternative to prophylactic antibiotic therapy.

Equally impressive results have been documented by others who stress on the careful, gentle and meticulous surgical technic as the best prophylaxis against postoperative infections, and hence employ no prophylactic antibiotic therapy

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(Richardson and Lyon, 1981, Gray, 1982).

Yet another reasonable approach to postoperative management will be that the decision should be made by the surgeon according to the risk of serious or significant infections. If the risk is considered low, prophylactic use of antibiotic should be avoided; if the risk is high, it is indicated (Van Scoy, 1976).

#### *Our Institutional Approach*

Influenced by the recent reports in the literature on the controversy of antibiotic therapy in vaginal or abdominal hysterectomy our approach to postoperative management was continuously changing. During the period 1980-1981 we were employing the conventional antibiotic therapy in the postoperative period, which included parenteral (first and second days) and oral (rest of the postoperative period) tetracycline therapy for 6 or 7 days in the postoperative period. In 1981-1982 period we employed prophylactic antibiotic therapy in and around the operative period with intravenous metronidazole in a dose of 2 gms, for 201 consecutive hysterectomies performed vaginally or abdominally. During 1982-1983 period we moved on to oral metronidazole prophylaxis for hysterectomies; and the response in 218 consecutive hysterectomies was studied. Since June 1983, we have stopped administering any form of antibiotics for elective hysterectomies, either vaginal or abdominal. To date (13th January, 1984) we have the postoperative follow-up of 147 consecutive subjects treated with no antibiotics.

The statistical data compiled by us, of the 566 consecutive hysterectomies (vaginal or abdominal) performed between October 1981 and January, 1984, permits for a comparison of the incid-

ence of postoperative infectious morbidity among three groups of patients: (i) Receiving prophylactic intravenous metronidazole, (ii) Receiving prophylactic oral metronidazole, and (iii) receiving no form of antibiotic therapy.

#### *Postoperative Management*

Irrespective of whether prophylactic antibiotics were administered or not, the general postoperative care included early ambulation (the same day or next day), encouragement for spontaneous voiding of urine, and regular oral feeds from the next day. The temperature recording was maintained every 4 hours, and the patients were carefully monitored for any complications.

Febrile morbidity was defined as temperature over 100.4°F (38°C) for two consecutive days excluding the first 48 hours of surgery. When there was febrile morbidity or if the patient complained of unusual pain or diarrhoea a pelvic examination was made as early as the 3rd or 4th day of operation. The purpose of this vaginal examination was to drain any pelvic collection through the open vault. Quite often this procedure alone, if needed repeated, was sufficient to control the infection. If temperature still persisted or if pus was drained, therapeutic antibiotic regime was initiated. Antibiotics preferred at this stage were I.V. metronidazole, ampicillin, amoxycillin or garamycin, depending on the nature of infection.

Usual length of hospital stay was 5 nights for vaginal hysterectomy and 6 nights for abdominal hysterectomy. The patients were seen 6 weeks after discharge for the regular follow-up.

The schedule of prophylactic antibiotic therapy employed in group I and II was as follows: Group I received I.V. metro-

nidazole, one gram on the previous evening and another one gram at or immediately after surgery. Group II received oral metronidazole again total of 2 gms as a single dose on the previous night. Group III subjects received no form of any antibiotic therapy. (Table I).

#### Observations

The patients in the three groups were comparable for their age, indication for hysterectomy and the type of hysterectomy (Table II). Considering all the 566 subjects undergoing hysterectomy, 60 patients had febrile morbidity (10.60%). Vaginal cuff infection was located in 42 subjects (7.42%). The different types of vaginal infections diagnosed were: (i) Vault sepsis in 26 subjects (4.59%), (ii) Vault induration in 13 subjects (2.30%), and (iii) Pelvic abscess in 3 subjects (0.53%). Antibiotic supplementation was required in 54 patients (9.54%). The hospital stay was prolonged by more

than 10 days in 27 women (4.77%). Evidently there were no serious complications in any of the 566 patients, and the only clinically significant complication was pelvic abscess detected in 3 subjects and treated effectively. Thus the overall post-operative infective morbidity for the entire series appears to be well within the bounds of clinically acceptable limits. Now let us analyse the morbidity based on the application or no application of prophylactic antibiotics. (Table III).

*I.V. metronidazole prophylaxis:* This group comprising of 201 operated patients has recorded lowest morbidity rate in terms of febrile morbidity in 8 subjects (3.98%), vaginal cuff infection in 5 (2.50%), need for antibiotic supplementation in 12 subjects (6.00%) and prolonged hospital stay in 6 subjects (3.00%). This highly acceptable postoperative performance is comparable to the infectious morbidity reported by us for the patients

TABLE I  
Postoperative Management Protocol for Hysterectomy

Period of study	Duration of study	Treatment schedule	No. of patients
October, 1981 to July, 1982	10 months	Prophylaxis with I.V. metronidazole (2 gms)	201
August, 1982 to May, 1983	10 months	Prophylaxis with oral metronidazole (2 gms)	218
June, 1983 to January, 1984	7½ months	No form of antibiotic therapy	147

TABLE II

Treatment schedule	Abdominal hysterectomy	Vaginal hysterectomy	Vaginal hysterectomy with PFR
I.V. metronidazole	45 (22.39%)	79 (39.30%)	77 (38.30%)
Oral metronidazole	52 (23.85%)	90 (41.28%)	76 (34.86%)
No antibiotics	40 (27.21%)	64 (43.54%)	43 (29.25%)
Total: 566	197 (24.20%)	233 (41.17%)	196 (34.63%)

TABLE III  
Post-operative Infective Morbidity for Hysterectomy

Details of morbidity	All patients	I.V. metronidazole	Oral metronidazole	No antibiotics
Total patients in each group	566	201	218	147
Febrile morbidity	60 (10.60%)	8 (3.98%)	30 (13.76%)	22 (14.96%)
Vaginal cuff Infection	42 (7.20%)	5 (2.50%)	15 (6.80%)	22 (14.96%)
i. Vault sepsis	26 (4.59%)	3 (1.50%)	13 (5.96%)	10 (6.80%)
ii. Vault induration	13 (2.30%)	1 (0.50%)	1 (0.46%)	11 (7.48%)
iii. Pelvic abscess	3 (0.53%)	1 (0.50%)	1 (0.46%)	1 (0.68%)
Antibiotic supplementation	54 (9.54%)	12 (6.00%)	21 (9.63%)	21 (14.28%)
Prolonged hospital Stay	27 (4.77%)	6 (3.00%)	10 (4.90%)	11 (7.48%)

treated during 1980-81 period with therapeutic dose of tetracycline for 6 or 7 post-operative days (Rajan *et al* 1984).

**Oral metronidazole prophylaxis:** This group records a 3 fold higher incidence of febrile morbidity and vaginal cuff infection when compared to I.V. metronidazole group. For the 218 patients treated 30 subjects (13.76%) had febrile morbidity, 15 (6.88%) had vaginal cuff infection, 21 (9.63%) required antibiotic supplementation, and 10 ((4.90) overstayed in the hospital for more than 10 days. However, as could be seen there were no serious complications, and in that respect the postoperative behavior of oral metronidazole group is comparable to the I.V. metronidazole group. Moreover, the febrile morbidity rate of 13.76% is still within the clinically acceptable range for infective morbidity.

**No prophylactic antibiotics:** The results for this group was almost comparable to that of oral metronidazole group, and hence should be clinically acceptable. Of

the 147 subjects in this group, 22 had febrile morbidity (14.96%), and all these 22 subjects had vaginal cuff infection. Antibiotic supplementation was required in 21 subjects (14.28%), and hospital stay was prolonged in 11 (7.48%).

#### Discussion

Among the 566 women undergoing hysterectomy for various indications there were no significant or dangerous infectious morbidity irrespective of whether they received prophylactic antibiotic therapy (I.V. or oral metronidazole) or received no antibiotic prophylaxis, except probably for 3 cases of pelvic abscess one in each group (about 0.5 to 0.6% incidence). All the three patients with pelvic abscess were completely cured by drainage through vault and antibiotic supplementation. Hence we feel that sufficient protection against postoperative pelvic infection is provided by a clean, gentle and meticulous surgical technic in elective hysterectomies

than by employing antibiotic therapy. It is true that the febrile morbidity and vaginal cuff infection rate are significantly reduced when prophylactic metronidazole therapy was employed, particularly when the drug was administered intravenously.

According to Gray (1982) a postoperative febrile morbidity rate of 20% is acceptable for hysterectomy. Febrile morbidity in our series for all the patients will be 10.60% and maximum is 14.96% in the 147 subjects who have not received any prophylactic antibiotic therapy.

It may be ideal to reduce the morbidity still further and keep it at the lowest as seen in our series receiving I.V. metronidazole prophylaxis. The figures are excitingly low and record a febrile morbidity of 3.98%, vaginal cuff infection of 2.50%, antibiotic supplementation rate of 6.00% and prolonged hospital stay in 3%. At the same time when the same group of patients were operated with no antibiotic prophylaxis the febrile morbidity rate and vaginal cuff infection rate were 3 to 4 folds increased, and in this group of patients antibiotic supplementation was needed in 14.28%. Nonetheless, there were no major complications nor the patients were at a greater disadvantage just because no antibiotics were administered prophylactically.

Now it is up to the surgeon to 'use' or 'not to use' prophylactic antibiotics for hysterectomies. Left to us we may prefer not to employ any form of antibiotic therapy and monitor the patient carefully in the postoperative period. As indicated by pyrexia or other symptoms an early (3rd or 4th day) vaginal examination to drain the pelvic collection will be all that

will be required to improve the condition of the patient and reduce the hospital stay. However, if there are compelling indications we may give antibiotic supplementation. By this management protocol we feel that the practical management of postoperative patients are quite satisfactory and the complication rate is clinically acceptable with no patient in danger of severe septic morbidity.

There are 3 types of hysterectomies described in this series, namely, vaginal hysterectomy, vaginal hysterectomy with pelvic floor repair and abdominal hysterectomy. It is not evident whether this management protocol employing no antibiotic therapy is equally suited to all the three types of surgery. Such an analysis is forthcoming with a large number of the three types of operations, and we feel that it may be quite useful for individualising the cases for optimal management.

#### *Acknowledgement*

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