POST OPERATIVE CERVICOVAGINAL BACTERIOLOGICAL STUDY IN HYSTERECTOMICS (BETADINE AND NORMAL SALINE VAGINAL TOILET)

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SUMMARY

Seventy patients admitted for hysterectomy were given normal saline and Betadine vaginal toilet just before operation and bacteriological pattern before and after vaginal toilet and 72 hours after operation was determined alongwith antibiotics sensitivity. It was found that Betadine provides a better antisepsis as preoperative vaginal toilet. Klebsiella Pneumonae was found to be the main organism responsible for post-operative morbidity. Gentamycin was found to be the most effective antibiotic.

Introduction

Prophylactic antibiotic use has received support (Barnes, 1959), and criticism (Marilyn, 1975). The use of local antiseptics has been advocated as a supplementation to the available asepsis. Povidine Iodine is an antiseptic having wide spectrum of activity against gram positive and negative organisms. Keeping in view the wide spectrum and efficiency of Povidine Iodine the present study has been untertaken to find out its efficacy.

Material and Methods

Seventy patients admitted for hysterectomy having no obvious vaginal infection and no hypersensitivity to iodine were taken for study. Patients were divided into two groups.

Group I comprised of thirty five patients who were given preoperative normal saline vaginal toilet.

Group II - thirty five patients who had preoperative Betadine vaginal toilet.

Two swabs, one from posterior fornix and one from cervical canal were taken for culture and sensitivity prior to vaginal toilet. This was repeated after vaginal toilet in both the groups. Patients were then subjected to hysterectomy and prophylactic antibiotic given postoperatively. Another swab was taken from vaginal vault 72 hours after operation for culture and sensitivity.

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When no culture was obtained no plates and broth culture was found turbid, subculture was done on blood agar and McConkey's medium and examined 24 hours after incubation.

Modified stoke's disc diffusion method was applied to determine sensitivity against the following antibiotics: (1) Ampicillin (2) Cephalosporin (3) Gentamycin (4) Penicillin (5) Tetracycline (6) Chloramaphenicol (7) Streptomycin.

Results

The mean age was 43.6 years and 45 years in group I and II respectively.

The haemoglobin concentration ranged between 10-12.9 gms %.

The indications for hysterectomy were menorrhagia, dysfunctional uterine bleeding, fibroid uterus, suspicious cervix, uterovaginal prolapse, delayed menopause.

Total abdominal hysterectomy with bilateral salpingooophrectomy has done in 33 patients in group I and 29 patients in group II, vaginal hysterectomy was undertaken in 2 patients in group I and 5 patients in group II. One patient in group II underwent Wertheim's operation.

Bacteriological Pattern

Group I : The bacteriological pattern in group I is shown in Table I. Before vaginal toilet 40% of vaginal swabs and 31.4% of endocervical swabs came out to be positive. After vaginal toilet with normal saline 31.4% vaginal swabs and 25.7% endocervical swabs were positive. Swabs obtained 72 hours after operation were positive in 91.4% cases. The percentage incidence of various bacteria isolated is shown in Table I.

Group II : Before the vaginal toilet 45.7% vaginal and 25.7% endocervical swabs were positive. After Betadine toilet 8.6% vaginal swabs were positive and no endocervical swabs were positive. Swabs obtained 72 hours after operation were positive in 68.5% of cases. The percentage incidence of various bacteria isolated is shown in Table II.

TABLE - I
SHOWING PERCENTAGE INCIDENCE OF BACTERIOLOGICAL PATTERN GROUP I

Isolate	*Before Vag. toilet*		*After Vaginal toilet*		*72 hours after operation*
	Vaginal	*Endocervix*	*Vaginal*	*Endocervix*	*Vag. Vault*
E. coli	5(14.3%)	2(5.7%)	4(11.4%)	2(5.7%)	5(14.3%)
Klebsiella Pneumonae	3(8.6%)	3(8.6%)	2(5.7%)	3(8.6%)	19(54.3%)
Pseudomonas aeruginosa	–	–	–	–	7(20.0%)
Staph. pyogenes	6(17.1%)	6(17.1%)	5(14.3%)	4(11.4%)	192(85.0%)
	14(40.0%)	11(31.4%)	11(31.4%)	9(25.7%)	32(91.4%)

TABLE - II
PERCENT INCIDENCE OF BACTERIOLOGICAL STUDY IN GROUP II

Isolate	*Before Vag. toilet*		*After Vaginal toilet*		*72 hours after operation*
	Vaginal	*Endocervix*	*Vaginal*	*Endocervix*	*Vag. Vault*
E.coli	3(8.6%)	2(5.7%)	2(5.7%)	–	6(17.1%)
Klebsiella pneumonae	4(11.4%)	2(5.7%)	1(2.9%)	–	13(37.1%)
Psaedomonas aeruginosa	2(5.7%)	1(2.9%)	–	–	3(8.6%)
Proteus mirabilis	–	–	–	–	2(5.7%)
Staph. pyogenes	6(17.1%)	3(8.6%)	–	–	–
Alpha-Haem. Strep. Cocci	1(2.9%)	1(2.9%)	–	–	–
	16(45.7%)	9(25.7%)	3(8.6%)	–	24(68.5%)

Sensitivity Pattern

In group I sensitivity pattern of bacteria to antibiotics is shown in Table III. Gentamycin was found to be the most effective antibiotic with a sensitivity of 84.1%.

In group II (Betadine group) also the Gentamycin was found to be the most effective antibiotic with a sensitivity of 82.6%. The sensitivity pattern is shown in Table IV.

TABLE - III
ANTIBIOTIC SENSITIVITY IN GROUP I

Antibiotic	*E.coli*	*Klebsiella pneumonae*	*Pseudomonas aeruginosa*	*Staph. pyogenes*
Positive cases	*18*	*30*	*7*	*22*
Ampicillin	7(38.9%)	5(16.6%)	1(14.3%)	22(100%)
Oxytetracycline	6(33.3%)	17(56.6%)	2(28.5%)	13(59.1%)
Cephalosporin	14(77.7%)	21(70.7%)	1(14.3%)	20(90.9%)
Gentamycin	15(83.3%)	22(73.3%)	6(85.7%)	22(100%)
Chloramphenicol	12(66.6%)	19(63.3%)	2(28.5%)	–
Streptomycin	14(77.7%)	24(80.0%)	3(42.9%)	–
Penicillin	–	–	–	16(72.7%)
Erythromycin	–	–	–	21(95.4%)

TABLE - IV
ANTIBIOTIC SENSITIVITY PATTERN IN GROUP II

Antibiotic	*E.Coli*	*Klebsiella pneumonae*	*Pseudomonas aeruginosa*	*Staph. pyogenes*	*Proteus mirabils*	*Haemolytic Strep. Cocci*
Positive cases	*13*	*20*	*6*	*9*	*2*	*2*
Chloramphenicol	6(46.1%)	13(65%)	1(16.6%)	–	1(50.0%)	–
Streptomycin	8(75.0%)	12(60%)	4(66.6%)	–	1(50.0%)	–
Ampicillin	1(7.6%)	3(15.0%)	–	7(77.7%)	–	–
Oxytetracycline	4(30.7%)	6(30.0%)	–	–	–	–
Cephalosporin	11(84.6%)	17(85.0%)	–	9(100%)	2(100%)	2(100%)
Gentamycin	11(84.6%)	18(90.0%)	5(83.3%)	8(88.8%)	–	2(100%)
Penicillin	–	–	–	7(77.7%)	–	1(50.0%)
Erythromycin	–	–	–	7(77.7%)	–	1(50.0%)

Discussion

The pre-toilet positive vaginal swabs in 42.6% of cases and 28.6% positive endocervical swabs are comparable with the findings of Bonnar et al (1969) who found pathogenic organisms in vagina in 29% of patients pre-operatively. However, the incidence of positive cultures in the present study is much lower than the study of Marylin et al (1975) who reported the incidence at 100%. The predominant organism isolated as Staph. pyogenes in vagina as well as endocervical cultures was also the most common vaginal inhabitant reported by Beuchler et al (1977) and Siegel et al (1980). E.coli and Klebsiella pneumonae was next most commonly found organisms in both vaginal and endocervical swabs. Pseudomonas aeruginosa was cultured in 5.7% of vaginal and 2.8% of endocervical swabs in Betadine group and none in saline group. Aggarwal and Chawla (1978) have also reported Ps.aeruginosa as normal inhabitant in vagina.

After normal saline toilet 34.4% of vaginal and 25.5% of endocervical swabs were positive. The reduction in percentage of organism may be due to inhibitory effect of saline or dilution of organisms in saline. After Betadine vaginal toilet the reduction in percentage of positive swabs was significant. Only 8.6% of vaginal swabs remained positive and none of endocervical swab was positive. These findings are in agreement with Monif et al (1980) who also reported dramatic fall in number of organism after Betadine toilet.

Seventy two hours after operations positve cultures were obtained in 91.4% in saline and 68.8% in Betadine group. Pseudomonas aeruginosa made a fresh appearance in 20% patients in the present study. This finding was consistant with the findings of Ohm and Galask (1975) who reported fresh appearance of this organism in 10.9% of the patients. The significant increase in number of positive cultures 72 hours after operation may be due to devitalised and traumatised tissue, which favours growth of organisms and also due to short lived action of Betadine.

Gentamycin on the whole proved to be the most effective antimicrobial agent

in both the groups. This findings is comparable to the findings of Aggarwal and Chitkara (1973) Martin & Lacey (1983). Ampicillin which was being used as a routine antibiotic in our institution was found to be effective in only 21% of strains.

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