Trimethoprim-Sulphamethoxazole in the Treatment of Infections in Obstetrical and Gynaecological Practice – A Bacteriological and Clinical Study

by Dr. Ng Keng Hing
MBBS (S'pore), FRCS(Edin.), MRCOG.
Dr. Wong Wai Ping
MBBS(S'pore), FRCS(Edin.), MRCOG.
Department of Obstetrics & Gynaecology,
University of Malaya,
Kuala Lumpur, Malaysia.

and Dr. Chai Kim Hai
MBBS(S'pore), Dip. Bact.
Department of Bacteriology,
University of Malaya,
Kuala Lumpur, Malaysia.

Introduction

IN RECENT YEARS, Gruneberg and de Lorenzo (1968) and Bohni (1969) of the Roche Research Laboratories in the U.S.A. and in Switzerland have developed experimentally, in close co-operation with the Wellcome Research Laboratories (Bushby and Barnett, 1967; Bushby and Hitchings, 1968) the invitro and invivo chemotherapeutic basis for the combination of trimethoprim (TM = 2.4, diamino – 5[3, 4, 5 – trimethoxybenzyl] and sulphamethoxazole (SMZ = 5 methyl – 3 sulphonilomido-isoxazole). Since then, there has been a large number of reports attesting to the efficacy of this combination of drugs. Favourable results have been reported in the treatment of urinary tract infections (Cox and Montgomery, 1969; Brumfitt et al, 1969; Lao et al, 1971), gonorrhoea (Csonka and Knight, 1967; Lao et al, 1971), chronic chest infections (Drew et al, 1967), typhoid (Akinkugbe et al, 1968) and proteus septicaemia (Naoll, et al, 1962; Cooper and Wald, 1964). However, there have been few reports on the use of trimethoprim-sulphamethoxazole in the treatment of gynaecological and obstetrical infections. Chong and Lean (1970) recently described their experience with this drug in the treatment of these infections in the Kandang Kerbau Hospital, Singapore, and Williams et al (1969) described the treatment of bacteuria in pregnant women with this drug combination.

This paper describes a clinical and bacteriological study on the use and effectiveness of trimethoprim-sulphamethoxazole in the treatment of obstetrical and gynaecological infections as seen in patients treated in the University Hospital, University of Malaya Medical Centre.

Materials and Methods

One hundred and forty patients with evidence of infection in the gynaecological and post-natal wards were included in the study. Trimethoprim-sulphamethoxazole was not prescribed to pregnant patients. The post-partum patients had urinary tract infections, puerperal pryexia or wound infections. The gynaecological patients had infections commonly seen in the gynaecological wards, namely, pelvic inflammatory diseases, septic abortions, urinary tract infections and post-operative infections. Table I shows the types of cases so treated.

Table I
Conditions treated with Trimethoprim-sulphamethoxazole

(A)	Gynaecology:	1. Urinary tract infections	26
		2. Pelvic inflammatory diseases	18
		3. Septic abortions	40
		4. Post-operative infections	17
(B)	Obstetrics:	1. Urinary tract infections	24
		2. Puerperal pyrexia	13
		3. Post operative wound infection	2
		TOTAL	140

Diagnosis was made on clinical and laboratory investigations. The patients so treated were managed personally by one of us. Routine investigations included haemoglobin estimation, total leucocyte and differential count and microscopic examination of the urine and vaginal discharge. Cultures of microbiological organisms and sensitivity testing were done for urine, cervical and vaginal secretions, and pus and blood when indicated.

After doing the preliminary investigations, these patients were prescribed trimethoprim-sulphamethoxazole (Bactrim-R). A course of Bactrim consisted of 2 tablets, 2 times daily for 5 days, giving a total of 1.6 gm. of trimethoprim and 8 gm. of sulphamethoxazole.

Daily assessment of the patients were carried out. Improvement was based on response to the treatment using the criteria of pyrexia, pulse rate and presence or absence of pain and tenderness. Possible side-effects, namely hypersensitivity reactions, anorexia, nausea, vomiting, rash, etc. were specifically looked for. Blood count and urine examinations were repeated at the end of the treatment.

Results

There were 101 gynaecological patients and 39 obstetrical patients in the series. Out of these 140 patients, 50 (35.7 per cent) had urinary tract infection.

The response was considered to be good when symptoms and signs disappeared within 48 hours. This was apparent in 75 per cent of the patients, as shown in Tables II and III. Moderate response, in which symptoms and signs improved between 48 hours and 96 hours were apparent in 19.3 per cent of patients. A satisfactory response was therefore seen in 94.3 per cent of the patients. Poor response was considered when the patients' condition remained the same after 96 hours or had deteriorated. This was seen in 5.7 per cent of patients. There was no significant difference in the responses between the obstetrical and gynaecological patients.

Table II
Responses of Gynaecological Infections to Bactrim

Type of Cases	No.	Response		
		Good	Mode-rate	Poor
Urinary Tract Infections	26	19	5	2
Pelvic Inflammatory Disease	18	12	4	2
Septic Abortions	40	31	7	2
Post-operative Infections: Pelvic Cellutitis	16	10	4	2
Peritonitis	1	0	1	0
TOTAL	101	72	21	8

Bacteriology

Out of 140 patients, 91 patients yielded culture of micro-organisms. In 9 patients, it was possible to culture 2 different types of bacteria. Out of the total 100 pathogenic organisms so cultured, there was a preponderance of coliform organisms, namely, 38 per cent (Table IV).

Table III
Responses of Obstetrical Infections to Bactrim

Type of Cases	No.	Response		
		Good	Moderate	Poor
Urinary Tract Infections	24	21	3	0
Puerperal Pyrexia	13	10	3	0
Post-operative wound Infections	2	2	0	0
Total of Table III	39	33	6	0
Total of Tables II & III	140	105 (75%)	27 (19.3%)	8 (5.7%)

Table IV
Invitro Sensitivity Results to Bactrim

Organisms	No. Isolated	No. Sensitive
E. Coli	20	18(90%)
Staphy. Pyogenes	21	19(90.9%)
Coliform Organisms	17	14(82.4%)
Proteus	14	14(100%)
Klebsiella Aerogenes	7	3(43.9%)
Pseudomonas Pyocyaneus	7	0(0%)
Streptococcus Faecalis	5	5(100%)
α-Haemolytic Streptococcus	4	4(100%)
β-Haemolytic Streptococcus	3	3(100%)
Anaerobic Streptococcus	2	2(100%)
TOTAL	100	82(82%)

The invitro testing of sensitivity against trimethoprim-sulphamethoxazole showed that 82 per cent of the bacteria were sensitive. High degrees of sensitivity were obtainable from E.Coli and the coliform organisms, staphylococcus pyogenes, proteus and the streptococci. Poor degrees of sensitivity (42.9% sensitive) was obtainable with the Klebsiella species. Pseudonomas pyocyaneus was resistant to the drug.

Toxicity

There were no abnormalities detected in the routine laboratory tests. Adverse reactions in the blood has been reported, but these are rare and consist mainly of agranulocytosis and purpura (Hanley, 1969).

Clinically, there were 3 patients who developed rashes towards the end of the courses of treatment. None were severe and all these disappeared without further complication on stopping the drug.

Nausea was seen in 2 patients and none had vomiting. Our incidence of side-effects was 3.6 per cent. Hanley (1969) reported an estimated incidence of 1 per cent during the first 6 months of marketing the drug from October 1968 to April 1969. The most common adverse reations had been skin rash, followed by nausea and vomiting, then glossitis. These 3 together composed 62 per cent of the total.

Conclusion

It would appear that the combination of sulphamethoxazole and trimethoprim is most effective in the treatment of obstetrical and gynaecological infections. Good and moderate responses were seen in 94 per cent of patients. The bacteriological investigations confirmed the high sensitivity of organisms isolated (82 per cent sensitive) to the drugs. The percentage of success suggest it might be more effective than penicillin and streptomycin, the commonly used antibiotics in Malaysia for treating these patients. A comparison of these different drug combinations has been reported (Wong, Ng and Chai, 1973). Toxicity to the drug was minimal in our study (3.6 per cent).

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