

**Table 1. Pattern of Use of co-trimoxazole**

Baseline characters		1995	2005	p value (Chi stat)
<b>Treatment</b>	HIV infection	1(1.04)	2(9.52)	0.08
	Septicaemia	2(2.08)	1(4.76)	0.45
	Urinary tract infection	1(1.04)	0	1
	Neurocysticercosis	1(1.04)	0	1
	Post renal transplantation	1(1.04)	4(19.05)	0.004
	Total	6(6.25)	7(33.33)	0.001(10.20)
<b>Prophylaxis Surgical</b>	Obstetrics and Gynaecological	27(28.13)	3(14.29)	0.27
	Surgical and interventional	37(38.54)	0	<0.001
	Burns	2(2.08)	0	1
	Neutropenia	0	1(4.76)	0.18
	Total	66(68.75)	4(19.05)	<0.001
<b>Cancer</b>	General	7(7.29)	2(9.52)	0.66
	Gynaecological use	17(17.71)	8(38.10)	0.08(3.14)
	Total	24(25)	10(47.62)	0.07(3.25)
	Grand total	90(93.75)	14(66.67)	0.001(10.20)
<b>Total</b>	96(100)	21(100)	<0.001(48.70)	
Charts screened	1500	1500		

negative organisms including multidrug resistant enterobacter and serratia (4). Presently the agents of first choice for septicaemia are combination of an aminoglycoside with third generation cephalosporins.

Gram-negative organisms mainly cause urinary tract infection, E coli the commonest. It is highly effective against these organisms and achieves good concentration in urine; its use has now declined in the treatment of urinary tract infections. The newer fluoroquinolones and broad-spectrum cephalosporins are the preferred agents now. Highly significant increase in use of this antibiotic in post renal transplant patients was observed. This use is mainly for prevention of secondary bacterial infections. Two factors must have been responsible for this- one an increasing number of surgical procedures for renal transplantation and second, ability of this drug to achieve good concentration in renal tissue.

Drug of choice for neurocysticercosis is albendazole. Secondary bacterial infection is a common sequel of rupture of cyst. Trimethoprim-sulfamethoxazole has a good central nervous system penetration and can be effectively used in this.

The most important use for prophylaxis was obstetric and gynaecologic (OBG) surgeries and cancer. The decrease use in OBG surgeries and increase in gynaecologic cancers was seen. Another important use was prophylaxis before chemoradiation or surgery for cervical cancers. In 1995, the use of cotrimoxazole for surgical and interventional procedures was nearly mandatory in all cases. There was however not even a single case of prophylactic usage of cotrimoxazole in 2005. Mixed gram positive and gram-negative infections are more commonly encountered in obstetric and gynaecologic interventions. Cotrimoxazole is effective in controlling

these infections. Prevention of post surgical infections must have been taken over by newer, broad-spectrum antibiotics like fluoroquinolones and cephalosporins. Cefazolin is first drug of choice for most of the surgical prophylaxis. Topical silver sulfadiazine is preferred for the treatment and secondary prevention of infections in burns patients. Usage in burns patients and neutropenic patients did not achieve any significant change. The UK committee on safety of medicines in 1995 has recommended that the use of cotrimoxazole should be limited to: Pneumocystis carinii pneumonia, toxoplasmosis and nocardiosis; urinary tract infections, and acute exacerbations of chronic bronchitis, but only when there is bacteriological evidence of sensitivity to cotrimoxazole; and acute otitis media in children, but only when there is a good reason to prefer it (5).

Cotrimoxazole (Trimethoprim-sulfamethoxazole) was introduced in 1969 and was found to be efficacious in various infections. It is a broad-spectrum antibiotic and sequential inhibition of steps in folate synthesis in bacteria makes it a bactericidal drug. Trimethoprim and sulfamethoxazole individually are bacteriostatic. It was a commonly prescribed drug with good results against most of the pathogens. With the availability of newer antibiotics with better pharmacokinetic profile and lesser number of side effects, the usage of this drug is on decline. In the present study 1500 inpatient charts each for year 1995 and 2005 were selected and administration of Trimethoprim-sulfamethoxazole noted along with indication, age and sex of the patients. There was a significant decrease in the usage of this drug in 2005 as compared to 1995. Most important indication was for surgical prophylaxis and cancer cervix prophylaxis. Other changes were not significantly different from each other.

#### References

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## Decrease Use of Cotrimoxazole in Clinical Practice: Is it Justified?

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Cotrimoxazole is a fixed dose combination of trimethoprim-sulfamethoxazole. This combination was a commonly prescribed broad spectrum antibiotic in the last century with fairly good efficacy against most of the common pathogens ranging from *S. typhi*, *Serratia*, *Klebsiella*, *Enterobacter*, *Yersinia*, *Pneumocystis carinii* to *S. aureus*, *S. pyogenes*, *Shigella*, *E. coli*, *H. influenzae*, gonococci and meningococci. Though both trimethoprim and sulfamethoxazole are bacteriostatic, their combination is bactericidal. This drug has a broad spectrum activity (1). Cotrimoxazole was introduced in 1969 and even after 35 years of its introduction, it finds a place in world health organisation (WHO) essential drug list.

Current study was carried to evaluate the indications of cotrimoxazole use in hospital in patients and change indication and magnitude of usage over ten years time. Antibiotic usage is peculiar to each hospital and varies between hospitals. No such similar studies have been done earlier from the institute.

1500 charts each pertaining to hospital inpatients of all specialities in 1995 and 2005 were scrutinised in a tertiary care hospital of Northern India. Age, sex and specific indication of use by the patients were noted. Comparison was done by Chi square test or Fishers exact test and 't' test

To determine the pattern of use of cotrimoxazole with a confidence interval of 95% and variability of 10%, the most conservative sample size required is 97 situations of cotrimoxazole use. Since the pilot study showed cotrimoxazole use to be 2% in 2005 and 6% in 1995, to get 97 total indications of its use, we decided to screen 1500 charts each, of both the years. 50 charts were cross checked for accuracy of initial recording.

Of the total 1500 charts each screened, 96 patients in 1995 and 21 patients in 2005 were getting co-trimoxazole. Mean age of patients in 1995 was  $35.65 \pm 17.85$  and that of 2005 was  $44.33 \pm 11.91$ , and was different statistically ( $p=0.009$ ). Of the total patients, 21 (21.88%) in 1995 and 8 (38.1%) of 2005 were males ( $p=0.20$ ). There was a

significant decrease in the in-patient prescription of cotrimoxazole in 2005 as compared with 1995 (1.4% vs. 6.4%  $p < 0.001$ ). Major indication of use was for surgical prophylaxis. The use was for obstetrical and gynaecological surgery and general surgery infection prophylaxis in 1995. This changed to obstetrical and gynaecological cancers and surgery in 2005. Post renal transplantation infection prophylaxis was another indication, which showed an increase in the usage of cotrimoxazole in 2005 (19% vs., 1%). Non-significant decrease in the usage of cotrimoxazole from 1995 to 2005 is observed for burns, urinary tract infection and neurocysticercosis. Increased usage was observed for prevention and treatment of secondary usage in HIV patients and septicaemia and non gynaecological cancers (Table 1.)

Use of cotrimoxazole has been in the treatment of acne, biliary tract infections, brucellosis, cat scratch disease, chancroid, *Pseudomonas cepacia* infections in cystic fibrosis, AIDS associated diarrhoea, isosporiasis, granuloma inguinale, gonorrhoea, listeriosis, melioidosis, mycetoma, otitis media, pertussis, typhoid and paratyphoid fevers, and whipple's disease (2). It is also useful for the prophylaxis of infections in immunocompromised patients (1).

An increase in the usage of cotrimoxazole for the treatment of comorbid infections in HIV seropositive patients was noted. This is important as cotrimoxazole is drug of choice for the prophylaxis and treatment of *P. carinii* pneumonia, a common condition in AIDS patients. It is also useful agent for the treatment of other infections in HIV patients like central nervous system toxoplasmosis, diarrhoea caused by *Isospora belli* and *Cyclospora* where it is first choice agent. This usage may still be more if we would have included outpatients also who receive ambulatory care.

Septicaemia is usually caused by mixed aerobic-anaerobic infections. Trimethoprim-sulfamethoxazole is effective against bacterial sepsis caused by gram-

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