A STUDY ON SPIRAMYCINE IN ACUTE TONSILLITIS AND SINUSITIS

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SUMMARY

The objective of the study was to asses the efficacy and tolerance of Rovamycine forte (Spiramycine) in cases of Acute Tonsillitis and Sinusitis. It was a prospective, non-comparative, open ended, clinical trial, in 60 patients, at the out-patient department of Lady Reading Hospital Peshawar. It was conducted during November 1994-March 1995. The results showed overall efficacy of the drug to be 90%, and excellent to good tolerance as 91%, for both indications. Thus, Rovamycine Forte (Spiramycine) proved to be an excellent macrolide, to be recommended in common Upper Respiratory Tract Infections (U.R.T.I.s) e.g. Acute Tonsillitis and Sinusitis. Its short therapy, has an added advantage in terms of compliance.

INTRODUCTION

U.R.T.Is are usually due to mixed pathologies. Nasal allergy, tonsillitis, and sinus infections are some of the known entities. Nevertheless, a substantial number of cases, could well be caused by common pathogens. Gram positive microbes continue to remain a major threat. Amongst which streptococcus pneumonia are the number one pathogens. Beta-lactamase producers like Haemophilus influenza and Branhamnella (Now Morexella) catarrhalis are the new potent microbes.

Antibiotic therapy is aimed not only at symptomatic improvement but also for the prevention of complications. Penicillin is generally considered the drug of choice in U.R.T.I., but, according to some recent studies, penicillin therapy has been associated with high rates of microbiological failure. Non-compliance, increased tolerance of microbial agents, and re-infection, are unproven causes of penicillin failure.[1-6] Certain commensals residing in the body are capable of producing betalactamase, an enzyme which can inhibit the activity of beta lactam agents thus jeopardizing their efficacy against the pathogens, which may otherwise be susceptible to them.[7] The presence of H. Influenza which is a beta-lactamase producing organism, necessitates the need for antibiotics other than penicillin. Among non-beta-lactam antibiotics, which are considered as good alternatives to treat U.R.T.Is, is Rovamycine Forte (Spiramycine), belonging to the Macrolide family.

This trial was conducted to study the efficacy of Rovamycine Forte (Spiramycine) in U.R.T.Is, like Acute tonsillitis and sinusitis; and to define the tolerance of the host.

MATERIAL AND METHODS

This study was conducted in the busy out-patient department of ENT at Lady Reading Hospital Peshawar, in the months of November 1994 to March 1995 and evaluated the effectiveness and safety of Rovamycine Forte (Spiramycine) administered twice daily, for 5 days in cases of

TABLE – I

PATIENTS CHARACTERISTICS

Total No. of patients	58
Acute tonsillitis	30
Acute sinusitis	28
Age (years)	Mean 28 years 13–60 years

Acute tonsillitis, and for 7 days for Acute Sinusitis.

Total of 60 patients (30 in each indication), aged above 12 years, participated in this open ended clinical trial. The inclusion criteria for acute tonsillitis was based on: fever>98.4 degree Fahrenheit (df), sore throat, and congested tonsils; whereas that for Acute sinusitis on: fever>98.4 df, pain in the region of sinuses, nasal discharge, headache, and nasal airway obstruction.

Efficacy was determined by clinical evaluation, and the results were categorized as complete cure or not cured, based on the clinical manifestations. Tolerance was assessed, on a 4 point scale of: excellent, good, moderate, and poor, based on the response from the patient.

RESULTS

The results for the trail based on Acute tonsillitis revealed that, on 5th day the temperature came to normal in 60% of patients whereas it was more than or equal to 100 df in 76% of patients. Very severe to severe sore throat from 77% was just limited to 13%. With the exception of dysphagia in 01 patient all the accompanied symptoms like bodyache (14), Headache (10), Dysphagia (4), and bodyache and dysphagia (9), had subsided on the 5th day. The efficacy was established for 83% of cases, and excellent to good tolerance was achieved for 90%.

In case of Acute sinusitis, 2 cases were lost to follow-up, and the results are based on the analysis of the remaining. On the 7th day, the temperature came to <99 df in all the cases. The pain over sinuses was

TABLE – II

CLINICAL FEATURES

2.1	ACUTE TONSILLITIS SYMPTOMS	DAY 1	DAY 5
	Fever	76%	Normal in 60%
	Sore Throat very severe to severe	77%	Only in 13%
	Other symptoms	28 cases	Only in 1 case
2.2	ACUTE SINUSITIS SYMPTOMS	DAY 1	DAY 7
	Fever	82%	Normal in all
	Pain over sinuses	100%	Relieved in 96%
	Nasal Discharge	83%	Absent in 79%
	Headache	100%	Absent in 93%
	Nasal Airway Obstruction	93%	Absent in 68%

TABLE – III

	Efficacy	No of patients and percentage
1.	ACUTE TONSILLITIS	
	Cured	25 (83%)
	Not cured	05 (17%)
2.	ACUTE SINUSITIS	
	Cured	27 (96%)
	Not cured	01 (04%)

absent in all but 1 case (96%). Nasal discharge was absent in 79% of cases. Headache became absent in all but 2 cases (93%). Nasal airway obstruction was absent in 68% of cases, and in the remaining it was present due to various reasons. The efficacy of drug was reported to be as 96%, and excellent to good tolerance was reported as 93%. The most frequent side effect reported was diarrhoea which is common in this class of drug. This is relatively less seen for Rovamycine than Erythromycin.[5]

DISCUSSION

Inspite of the large range of antimicrobial agents which developed during the second half of 20th century, infections diseases remain a major threat. The essential factors that complicate the issue, currently and have gained significance in treating these infections are microbial resistance, the emergence of new pathogens, indirect pathogenesis and increased number of individuals with congenital/acquired impairment of immune defences.

Improper and non-selective use of antibiotics,, inadequate dosage either prescribed by physician or consumed by the patient, a rise in the number of external contaminants e.g. air and water pollution etc. are some of the causes for increasing bacterial resistance against anti-infective molecules.

To meet these therapeutic challengers new anti-infective strategies are required and one should be very choosy in the selection of an antibiotic, keeping in view the characteristics of an ideal antibiotic. These are as follows:

- It should possess in-vivo activity comparable with in-vitro findings.
- Should have adequate bio-availability.
- Have a prolonged half life permitting twice daily or single daily dosage.
- Should be safe and free of toxicity.
- Should have selective concentration in the infected tissues.
- Should be palatable.
- Should be economical.

The under-trial drug i.e. Rovamycine Forte (Spiramycine) possesses nearly all of these qualities, and therefore can be recommended as a first choice in treating U.R.T.Is.

Spiramycine belongs to the 1st generation of natural Macrolide antibiotics a long established family of anti-infective agents. It is produced by Streptomyces ambotaciens. Like the rest of the Macrolide family the antibacterial spectrum of Spiramycine includes Gram positive and Gram negative cocci legionella, chlamydia sp. mycoplasma pneumonia and other.

TABLE – IV

	Tolerance level	No of patients and percentage
1.	ACUTE TONSILLITIS	
	Excellent-good	27 (90%)
2.	ACUTE SINUSITIS	
	Excellent-Good	26 (93%)

It acts by disturbing the protein synthesis. Thus the ribosomes of both gram positive and gram negative organisms are susceptible.[9]

In contrast with beta-lactams, Macrolides exert an evident post-antibiotic effect (PAE). The PAE is defined as persisting suppression of bacterial growth after limited exposure of bacteria to antimicrobial agents.[10] Webster et al, noted a more prolonged PAE with Spiramycine than with Erythromycin against S. aureus.[11] Studies on the effects of antibacterial agents on microbial virulence showed that subinhibitory concentrations of Macrolides may modify the morphology, metabolism and susceptibility of various bacteria to natural antibacterial defences. Desnottes et al[12] demonstrated the ability of Spiramycine at concentrations below and above the MIC to alter the ability of various staphylococcal and streptococcal strains to adhere to human buccal cells. The authors also observed morphological alteration of these organisms when exposed to Spiramycine.

One of the most interesting properties of Spiramycine is its ability to concentrate at a number of sites in the respiratory tract. Different authors have shown that Spiramycine usually reaches much higher concentrations in the respiratory tract than in simultaneous serum sample. This includes tissues in the upper tract such as tonsils and sinus mucosa, as well as bronchial mucosa and sputum. High concentrations are also attained in salvia.[13-15] This secretory capacity of Spiramycine into the salivatory secretions is of great benefit in controlling pharyngitis and makes this drug far more superior to various other broad spectrum antibiotics.

Studies have shown Spiramycine to be a drug exhibiting comparable in-vitro efficacy to erythromycin.[16] Severe complications were extremely rare.[17]

CONCLUSION

From this review of pharmacology related to Spiramycin and the experience drawn from the trial conducted by the author, it can be concluded that Spiramycine appears to offer advantages. These are over other Macrolides, as well as other groups of antibiotics, in terms of its good tolerability, high efficacy rates, tissue directed pharmacokinetics and its relatively long life which allows twice daily administration.

REFERENCES

1. Kaplan EL. Benzathine penicillin G for treatment of group A streptococcal pharyngitis; a reappraisal in 1985. Pediatr Infec. Dis. J 1985; 4: 592.
2. Kin KS. Clinical perspectives on penicillin tolerance. J. Pediatr 1988; 112: 509.
3. Markowitz M. Rosenstein BJ. Goldstein E, et al. Factors involved in the treatment failures following oral peicicillin therapy of streptococcal pharyngitis. J. Pediatr 1968; 78: 513.
4. Randolph MF, Redys JJ, Cope JB, Morris KE. Streptococcal pharyngitis: post treatment fassia prevalence and clinical relapse in children treated with clindammycin palmitate or phenoxy methyl penicillin. Clin. Pediatr 1975; 14: 119.
5. Brook I. The role of B.Lactamase producing bacteria in the perisitence of streptococcal tonsilar infection. Rev. Infect. Dis. 1984; 6: 601.
6. Tuner K, Nord CE. B.Lactammase producing micro-organisms in recurrent tonsillitis. Scand J. Infect Dis. 1983; 39: 83.
7. Dabernat HJ. Community acquired infections and resistance to antibiotics current findings on B.Lactamases: J.A.M.A. 1990; 7.
8. Pilot MA, Qin XY. Macrolides and gastrointestinal motility. Journal of Anti-microbial therapy 1988; 22 (Suppl-B): 201.

9. Menminger JR. Functional consequences of binding macrolides to ribosomes J. of antimicrobial chemotherapy 1985; 16 (Suppl A): 23.

10. Bigger TW. The bactericidal action of penicillin on staphylococcus pyogenes. Irish J. of Med. Sc. 1944; 227: 553.

11. Webster C, Ghazanfar K, Slack R. Sub-inhibitory and post-antibiotic effects of Spiramycine and erythromycin on staph. aureus. J. of antimicrobial chemmotherapy 1988; 22 (Suppl-B): 33.

12. Desnottes JF, Diallo N, Santonja R, Moret G. Effects of sub-inhibitory concentrations of Spiramycine on the adherence of gram positive cocci to human cells. Drugs under experimental and clinical research 1987; 13: 69.

13. MacFarlane J, Mitchell A, Walsh J, Robertson J. Spiramycine in the prevention of post-operative staphylococcal sepsis. Lancet 1968; 1: 1.

14. Lamy P, Anthoine D, Zack P, Weber M, Baudeson D. Etude pharmacocinetique de la spiramycin in pathologie infectieuse respiratoire. Annales Medicales de Nancy 1977; 16: 109.

15. Bergogne, Berezin E. Spiramycine concentrations in the human respiratory tract: a review J. of anti-microbbial chemotherapy 1988; 22 (Suppl-B): 117.

16. Claude Carbon. Clinical efficacy and place of Spiramycine in the treatment of Acute Respiratory Tract Infections. Drug Investigations 6: supplement 1, 1993: 35.

17. Descottes J, Vial T, Delattre D, Fmmreux JC. Spiramycine safety in man J. of antimicrobial chemotherapy 1988; 22 (Suppl-B): 207.