

Azithromycin Versus Co-trimoxazole in The Treatment of Doxycycline Resistant Acne Vulgaris In Iraqi Patients

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Summary:

Background: Acne is a multifactorial disease with multiple pathogenic factors. Many types of therapies are available including systemic antibiotics , choosing the appropriate one depend on the experience of the doctor , side effects , antimicrobial resistance , availability and cost. Although doxycycline is effective and commonly prescribed as first line systemic treatment for moderate to severe inflammatory acne vulgaris , some cases do not respond because of antimicrobial resistance.

Objective: To evaluate and compare the effectiveness and safety of azithromycin and co-trimoxazole in the treatment of acne vulgaris cases that are resistant to doxycycline in Iraqi patients.

Patients and methods: A randomized clinical trial was carried out at the Department of Dermatology and Venereology of Baghdad Teaching hospital between April 2009 and October 2010. A total of 50 patients with doxycycline resistant moderate to severe papulopustular acne vulgaris were divided to two equal groups to receive either azithromycin or co-trimoxazole. Both groups received treatment for 2 months . in the first group azithromycin 250 mg was prescribed daily for 1 months and everyother day for the second month. The second group received co-trimoxazole 960 mg twice daily for 2 months. The clinical assessment was done by counting the number of inflammatory lesions at 3 occasions : baseline ,after 1 month and after 2 months . Patients also seen after 2 months of cessation of therapy to asses the relapse rate.

Results: After 2 months both groups show statistically significant difference from the base line in reducing the number of inflammatory lesions and improving acne but azithromycin was superior to co-tomoxazole.

Conclusion: This study showed that both azithromycin and co-trimoxazole are effective and safe alternative drugs in the treatment of doxycycline resistant acne vulgaris . But Azithromycin is more effective with less relapse rate and better compliance, but it is more costly than co-trimoxazole . Co-trimoxazole is safe and good alternative option in treating doxycycline resistant acne vulgaris.

Key words: doxycycline ,azithromycin , co-trimoxazole.

J Fac Med Baghdad
2013; Vol.55, No. 1
Received: Sept. 2011
Accepted Jan., 2013

Introduction:

Acne vulgaris is a common chronic and recurring disease. Its disease of pilosebaceous unit , involving abnormalities in sebum production , follicular epithelial desquamation, bacterial proliferation and inflammation(1).The major treatment agents are topical and systemic antibiotics , retinoids and systemic hormonal drugs (2,3,4). Antimicrobial resistance is a common problem and is a limiting factor in patients response and choosing the appropriate antibiotic in treating acne vulgaris (5). Doxycycline is one of the most commonly used antibiotics in treating moderate to severe papulopustular acne vulgaris .It is safe drug with minimal side effects and effective in about 70% of patients after proper course . However some patients do not respond favorably because of antimicrobial resistance .Its preferred by many patients because of its effectiveness, safety and easy single daily dosing regimen (5). Azithromycin is orally administered antibiotic that has a wide spectrum of activity, it belongs to the azalides group of antibiotics

and structurally is closely related to macrolides like erythromycin(6) Many clinical studies showed that azithromycin is effective and safe drug in treatment of acne vulgaris (7,8). Co-trimoxazole is a sulphonamide antibiotic that is widely used in many types if systemic infections like urinary and respiratory infections. It act by inhibiting enzymes at 2 successive stages in the synthesis of paraaminobenzoic acid to folic acid and DNA (6).

It is mentioned to be safe and effective in the treatment of acne vulgaris (5). The aim of the present study is to evaluate and compare the effectiveness and safety of azithromycin and co-trimoxazole in the treatment of doxycycline resistant acne vulgaris in Iraqi patients.

Patients and methods:

This study was conducted at the Department of Dermatology and Venereology of Baghdad Teaching Hospital between April 2009 to October 2010. A total of 50 patients with moderate to severe papulppustular acne vulgaris were included in the study. All patients were doxycycline

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resistant cases after proper course of treatment for 2 months .Patients who were excluded from this study included patient with G6PD deficiency, patients with history of allergy to the used medication , pregnant and lactating women. A full face count of papular and pustular lesions was done for each patient.The number of lesions was calculated at the beginning of treatment and after one month and two months respectively. The difference between the numbers of inflammatory lesion observed at baseline and the number of lesions after 2 months was used to evaluate the response to the treatment.

A difference equal or greater than 50 percent was considered good response , between 20 to 50 percent moderate and less than 20 percent poor response.Patients were informed about the plan of treatment and their consent were obtained.

Patients were divided to two equal groups. Each group consisted of 25 patients. Patients in the first group were given azithromycin 250 mg (Azitromid , Meditaranean Pharmaceutical Industries , Syria) daily for the first month and every other day for the second month. The second group received co-tomoxazole 960 mg (Methoprim , Samara Drug Industries , Iraq) twice daily for 2 months. All data were arranged and tabulated in number and percent and mean±SDby using statistical package for social

science (SPSS 9) .P-value less than 0.05 considered to be significant.

Patients were seen regularly every one month for two months to assess response to treatment and record side effects.

Results:

50 patients with doxycycline resistant moderate to sever papulppustular acne vulgaris were included in the study to. Thirty-six patients completed the study while 14 patients defaulted for unknown reasons . Their ages ranged from 14-28 with a mean of 19.2±2.2 years .Sixteen patients completed the treatment course on azithromycin while nineteen patients completed the treatment course on co-trimoxazole.

After two months on treatment both groups showed statistically significant difference from the base line in the reducing the number of inflammatory lesions , although response rate to azithromycin was higher but the difference between the two groups was statistically insignificant , the assessment of the clinical response of the patient to the treatment in both groups is shown in table (1).

Few side effects were recorded , which included mild epigastric pain in 3 patients who were treated with azithromycin , while no side effects recorded in patients who were treated with co-trimoxazole.

Table 1: response rate after 2 months in 2 different groups.

treatment	Good reponse	Moderate response	Poor response	total
azithromycin	7 patients (48)%	6 patients (32%)	3 patients (14%)	16 patients (100%)
Co-trimoxazole	6 patients (32%)	8 patients (42%)	5 patients (26%)	19 patients (100%)

Discussion:

Acne is a common skin disease that can cause disfigurement and psychological effect on the lives of vulnerable adolescent(1).Many treatment agents are available ,however there is no fixed regimen for every patient and selection of treatment depend on physician experience , clinical state of the patient , tolerance to the drug and compliance of the patient(5). Doxycycline is safe and effective treatment for moderate to severe inflammatory acne vulgaris . its used in many cases as first line antibiotic. However in some cases there is poor response due to antimicrobial resistance and there is a need to choose another antibiotic to treat acne (5). Azithromycin is a new generation macrolide antibiotic presents pharmacokinetic and pharmacodynamic properties

that allow for single daily dosing regimen with minimal side effects (9). The main action of azithromycin in treating acne is by inhibiting the growth of p. acnes and production of free fatty acids which play important role in neutrophil chemotaxis and inflammation (9). This study confirmed that azithromycin alone is safe and effective treatment for acne vulgaris. Only 3 patients had side effects in the form of mild epigastric pain and nausea. The results of this study was agreeable with previous studies using azithromycin in treating acne vulgaris (8). Co-trimoxazole is a sulphonamide antibiotic that is used in many types of adult systemic infections (5. It's mentioned to be effective in the treatment if acne cases that are unresponsive to other antibiotics (6). In this study co-trimoxazole is proved to be effective and

safe antibiotic in the treatment of doxycycline resistant acne vulgaris. However its less effective than azithromycin. No previous similar studies using co-trimoxazole could be found in the literature for comparison with the results of this study. Patients were followed for 2 months after cessation of treatment to estimate relapse rate and it was 28% for azithromycin versus 54% for co-trimoxazole.

Conclusions:

This study showed that both azithromycin and co-trimoxazole are effective and safe drugs and good alternatives in the treatment of doxycycline resistant acne vulgaris. But Azithromycin was more effective with less relapse rate and better compliance, but it is more costly than co-trimoxazole. Co-trimoxazole is safe and good alternative option in treating doxycycline resistant acne vulgaris.

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