

ADVERSE EFFECTS ASSOCIATED WITH SULFASALAZINE ON CHRONIC PLAQUE TYPE PSORIASIS

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Abstract:

A prospective, randomized controlled clinical trial was conducted with thirty patients of chronic plaque psoriasis to evaluate the adverse effects of sulfasalazine on chronic plaque type psoriasis, comparing with methotrexate. Fifteen respondents (Group A) were treated with oral Sulfasalazine (Reumazin 500mg) 2 gram in 2 divided doses. Equal number of psoriatics (Group B) was treated with 7.5 mg of methotrexate (Methotrax 2.5 mg tablet) once weekly at night for 8 weeks. Psoriasis area and severity index PASI score was calculated as main outcome measure at entry level and follow up after four weeks and 8 weeks (final follow up). Physical examination, complete blood count, serum alanine transaminases (ALT) and creatinine level were tested at baseline and at every follow up. Statistically significant improvement of psoriasis based on PASI score reduction was observed after eight weeks of treatment in both groups ($p < 0.001$). Adverse effects were noticed in 73.3% and 66.7% in group A and B respectively but that were common and mild to moderate in severity and did not require withdrawal of therapy and no significant difference was found in two groups ($P > 0.05$). There was no significant change in hematological and biochemical tests at baseline and follow up between two groups ($P > 0.05$). In conclusion, sulfasalazine is a safe alternative therapy for chronic plaque type psoriasis in comparable with methotrexate.

Key words: Adverse effects with sulfasalazine, methotrexate, plaque type psoriasis, psoriasis.

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Introduction:

Psoriasis is a common, genetically determined, inflammatory skin disorder of unknown cause, which, in its most usual form, is characterized by well demarcated, raised, red scaling patches that preferentially localize to the extensor surfaces.¹

Sulfasalazine consists of 5-aminosalicylic acid (5-ASA) and sulfapyridine (SP), linked by an azo bond. Thus, sulfasalazine and 5-ASA inhibit cyclooxygenase and 5-lipoxygenase.^{2,3} Sulfasalazine and SP, but not 5-ASA, have been also shown to inhibit Ag-stimulated TNF- α production by mast cells. Other studies showed that sulfasalazine, but not 5-ASA and SP, is anti-inflammatory in the murine air pouch model of inflammation.⁴

Patients with moderate to severe disease generally require phototherapy (e.g. narrow

band ultraviolet B radiation), photo chemotherapy (oral psoralen plus ultraviolet A radiation) or systemic agents (e.g. Cyclosporine, methotrexate, oral retinoids, fumaric acid esters) to control their disease adequately. In general, these therapeutic modalities have proven to be highly effective in the treatment of psoriasis. However, potentially serious toxicities can limit their long-term use. There is no standard therapeutic approach for patients with moderate to severe psoriasis, the benefits and risks of phototherapy, photo chemotherapy and systemic therapy must be weighed carefully for each patient, and treatment should be individualized accordingly.⁵

The most common side effects include nausea, headache and indigestion. These are usually mild and self limiting.⁶ If the safety of

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sulfasalazine is found equal to better than methotrexate, it can be used as a monotherapy or as an effective pair in combination therapy or rotational therapy. The potential toxic effects of long term use of the classic anti-psoriatics, long continuous therapy, higher cost and low socio-economic conditions of patients justify a clinical trial with sulfasalazine in Bangladesh. We carried out this clinical trial to explore the safety of sulfasalazine, as a new option to treat psoriasis.

Material and Methods:

A prospective, randomized controlled clinical trial study was carried out with thirty clinically and histopathologically diagnosed patients of chronic plaque psoriasis. The study conducted in the department of Dermatology and Venereology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka for duration of April 2010 to May 2011. Sampling technique was simple random sampling and data were collected in a predesigned questionnaire.

Inclusion Criteria are: all patients reported with chronic plaque type psoriasis, in the department of Dermatology and venereology of BSMMU, Dhaka during the study period, Psoriasis Area And Severity Index (PASI) ³⁷ (moderate to severe type), female who agreed to practice appropriate contraceptive measure and patients having serum alanine transaminase(ALT) and serum creatinine level within normal limit.

Exclusion Criterias are: Patients not willing to participate in the study, pregnant and lactating females, persons working under direct sunlight, persons having hypersensitivity to methotrexate, sulfasalazine or any sulfa drugs and salicylates, individuals on any form of topical or oral medication for at least 2 weeks prior to the study and person having impairment of renal, hepatic, hematological system and history of acute or chronic active infections.

Procedure of data collection:

A total number of thirty patients were randomly selected into two groups (group-A and group-B), each of which included 15

patients. Complete history, general physical and dermatological examinations were done for all enrolled patients. For women of reproductive age reproductive history, menstrual history, lactation and pregnancy plan were carefully judged. History and physical findings were recorded in a data sheet. Baseline investigations included complete blood count (total count, differential count of white blood cell, platelet count, Hb%, ESR), urine analysis, serum creatinine, serum alanine transaminase, random blood sugar, x-ray chest posterior-anterior view and pregnancy test as required, were done. Finally those patients, who matched the inclusion and exclusion criteria according to history, physical examination and laboratory reports and freely gave their informed consent, were selected for the study. Photographs of all lesions at baseline and at the end of 4th and 8th week were taken for subsequent assessment and further comparison. Erythema, induration and scaling were recorded in term of PASI (Psoriasis Area and Severity Index) at baseline, after four weeks and 8th weeks of therapy as the tool of main outcome measure. Adverse effects of the drugs among all patients of two groups were noted.

Initiation of therapy of methotrexate:

Premethotrexate screening

Premethotexate history and physical examination includes: History of presence of hepatotoxic risk factors- significant life-time alcohol consumption/Past or current use of >1–2 drinks per day; persistently abnormal liver function tests, inherited or acquired liver disease, chronic hepatitis B or C, obesity, diabetes mellitus, exposure to hepatotoxic drugs or chemicals. Child bearing female-desiring to be pregnant, pregnant, nursing. Renal insufficiency- severe renal insufficiency or on dialysis. History of haematological abnormalities. History of drug. Physical examinations include signs of cirrhosis/renal insufficiency/ pregnancy.

Scoring of psoriasis:

Severity of psoriasis were scored by using psoriasis area and severity index PASI formula, in which the body was divided into four areas

Head (H), Upper limb (U), Trunk (T) and Lower limb (L). Erythema (E), Induration (I) and Desquamation (D) were measured for each area with a scale ranging zero (none), 1 (mild), 2 (moderate), 3 (severe) and 4 (very severe). Erythema and induration were measured as visual impression and palpation of the lesion in place of ideal chromometer and ultrasound respectively. Body surface was measured with Patients' palm, taken as 1% total body surface area. Head area: one palmer surface of hand = 10% of head area; Upper limb: two palmer surface of hand = 10% upper limb area; Trunk area: three palmer surface of hand = 10% trunk area; Lower limb: four palmer surface of hand = 10% lower limb area. PASI was calculated using the following formula:

$$0.1 (E_H + I_H + D_H) A_H + 0.2 (E_U + I_U + D_U) A_U + 0.3 (E_T + I_T + D_T) A_T +$$

$$0.4 (E_L + I_L + D_L) A_L \text{ (Feldman \& Krueger, 2005).}$$

Severity of plaque type psoriasis can be classified according to PASI score (Schmitt & Wozel, 2005). Psoriasis can be defined as severe when PASI score >12, moderate when PASI score 7-12 and mild when PASI score <7. Percentage of PASI score reduction is used for assessment the efficacy of drug and prognosis of plaque type psoriasis. The percentage of PASI score reduction can be describe as 4 grades. When PASI reduction <50% it can be defined as minimal response, 50% - 69% as moderate response, 70% - 89% as very good response and 90-100% as excellent response.

Intervention of Sulfasalazine:

Randomly 15 patients of psoriasis were included in sulfasalazine (group A) and another 15 were included in methotrexate group (B control). All patients of Group-A were treated with tablet Sulfasalazine (Reumazin 500 mg) at a dose of 500 mg 1 tablet daily at evening for 1st week, 1 tablet at morning and evening for 2nd week, 1 tablet at morning and 2 tablet at evening for 3rd week and then 2 tablet at morning and evening (2 gram per day) upto eight weeks. Group-B patients were treated with 7.5 mg of oral Methotrexate (Methotrax, 2.5mg three tablets) once weekly at night on a definite day. For group B tablet Folic acid (Folison 5 mg) on the next night (24 hours later) of methotrexate once weekly for total eight weeks duration. No topical medication except bland emollients was

applied on the psoriasis plaque. Patient's general physical examination, history and follow-up investigations for assessing adverse side effects were done after 2nd week, 4th week and finally after 8th week of treatment. Follow-up laboratory investigations were: Complete Blood Count (Total and differential count of White blood cell, hemoglobin and ESR), platelet count ($\times 10^9/L$), serum alanine transaminase (S. ALT) (U/L) and renal function tests (BUN, creatinine).

Data processing and analysis:

All collected data were checked and rechecked for omissions, inconsistencies and improbabilities. Data analysis was performed by Statistical Package for Social Science (SPSS), version-16. Data was edited, coded and entered into the computer. Statistical analyses were done and level of significance were measured by using appropriate procedures like chi square test (χ^2), paired and unpaired t-test. Level of significance (p value) was set at 0.05 and confidence interval at 95%.

Results:

Table I shows the mean \pm SD age was 34.7 \pm 12.7 years and 34.5 \pm 15.8 years in group A and group B respectively. Male was found 7 (46.7%) in group A and 8 (53.3%) in group B. Maximum respondents of both groups were married, which was 11(73.3%) in group A and 10 (66.7%) in group B. Family history of same disease was found 4(26.7%) in group A and 1(6.7%) found in group B. Analysis revealed no significant difference between two groups in terms of age, sex, marital status and family history of same disease.

Regarding the duration of illness, we found that most of the patients suffered 1- 5 years in both groups, which were 8 (53.3%) and 10(66.7%) in group A and group B respectively. The mean duration of illness was 5.5 \pm 3.7 years in group A and 4.4 \pm 3.5 years in group B. There is no statistically significant difference between two groups in terms of duration of illness (p value >0.05). The itching status of the study patients was found 13(86.7%) patients in group A and 10 (66.7%) in group B. There is no statistically significant difference between two groups in terms itching status (p value >0.05).

Table I
Comparison of baseline characteristics of patients of group-A and group-B.

	Group A (n=15)		Group B (n=15)		t/chi value	P value
	n	%	n	%		
Age (in year)						
< 20	1	6.7	3	20.0	0.05	0.960 ^{ns}
21-30	7	46.7	6	40.0		
31-40	3	20.0	1	6.7		
41-50	2	13.3	1	6.7		
>50	2	13.3	4	26.7		
Mean±SD	34.7±12.7		34.5±15.8			
Sex						
Male	7	46.7	8	53.3	0.13	0.715 ^{ns}
Female	8	53.3	7	46.7		
Marital status						
Married	11	73.3	10	66.7	0.16	0.690 ^{ns}
Unmarried	4	26.7	5	33.3		
Family history of same disease						
Yes	4	26.7	1	6.7	2.16	0.141 ^{ns}
No	11	73.3	14	93.3		
Duration of Illness (years)						
1-5	8	53.3	10	66.7	0.78	0.443 ^{ns}
6-10	6	40.0	4	26.7		
>10	1	6.7	1	6.7		
Mean±SD	5.5±3.7		4.4±3.5			
Itching						
Present	13	86.7	10	66.7	1.60	0.195 ^{ns}
Absent	2	13.3	5	33.3		

Group A: Sulfasalazine Group B: Methotrexate

ns=Not significant, P value reached from unpaired t-test and chi square test.

Table II
Comparison of Psoriasis Area and Severity index (PASI) in two groups.

PASI	Group A (n=15)	Group B (n=15)	t value	P value
	Mean ±SD	Mean ±SD		
Base line	14.7 ±4.5	12.5 ±4.2	1.39	0.174 ^{ns}
After 4 th week	8.8 ±2.6	8.1 ±3.1	0.73	0.468 ^{ns}
Reduction after 4 th weeks (%)	39.4		35.4	
1.46	0.155 ^{ns}			
After 8 th week	6.0 ±2.8	4.5 ±1.4	1.81	0.082 ^{ns}
Reduction after 8 th weeks (%)	59.6	60.7	-.20	0.802 ^{ns}

Group A: Sulfasalazine, Group B: Methotrexate

ns =Not significant and P value reached from unpaired t-test.

Mean Psoriasis Area and Severity Index (PASI) score of Group A and Group B at baseline was 14.7 ± 4.5 and 12.5 ± 4.2 and respectively. The mean PASI score after 4th weeks therapy was 8.8 ± 2.6 and 8.1 ± 3.1 for group A and Group B respectively. After 8th week mean PASI score was 6.0 ± 2.8 and 4.5 ± 1.4 in group A and group B. The mean difference of PASI at baseline, after 4th week and after 8 weeks of therapy was not

statistically significant (p value >0.05) between two groups.

The mean percentage of PASI reduction after 4th week of treatment was 39.4 and 35.4 in group A and group B (p value >0.05). The mean percentage of PASI reduction after 8th week of therapy was 59.6 in-group A and 60.7 in-group B respectively. The mean difference was not statistically significant (p value >0.05) between both groups.

Table III

Comparison of pulse, BP and temperature of patients at baseline and at follow-up in two groups.

Variable	Group A (n=15) Mean \pm SD	Group B (n=15) Mean \pm SD	t value	P value
Pulse				
Base line	73.6 ± 10.5	73.6 ± 8.8	0.00	1.000 ^{ns}
1 st follow up	77.9 ± 10.2	72 ± 5.2	1.98	0.058 ^{ns}
2 nd follow up	73.6 ± 5.2	73.3 ± 8.4	0.10	0.917 ^{ns}
3 rd follow up	77.6 ± 9.3	77.1 ± 6.5	0.18	0.857 ^{ns}
Blood pressure (systolic)				
Base line	110.3 ± 12.9	111 ± 16.3	-0.12	0.902 ^{ns}
1 st follow up	111.0 ± 14.7	108.3 ± 17.6	0.45	0.655 ^{ns}
2 nd follow up	117.0 ± 14.0	109.7 ± 18.2	1.24	0.226 ^{ns}
3 rd follow up	113.3 ± 14.6	112.3 ± 17.8	0.17	0.868 ^{ns}
Blood pressure (diastolic)				
Base line	76.0 ± 8.7	73.7 ± 8.3	0.75	0.460 ^{ns}
1 st follow up	76.3 ± 7.9	73 ± 7	1.22	0.232 ^{ns}
2 nd follow up	77.3 ± 6.2	75 ± 8.7	0.85	0.404 ^{ns}
3 rd follow up	76.7 ± 6.7	76 ± 8.7	0.23	0.816 ^{ns}
Temperature				
Base line	97.9 ± 0.5	97.8 ± 0.7	0.43	0.672 ^{ns}
1 st follow up	98.0 ± 0.7	97.8 ± 0.6	1.03	0.312 ^{ns}
2 nd follow up	97.9 ± 0.5	97.5 ± 0.5	1.93	0.064 ^{ns}
3 rd follow up	97.7 ± 0.5	97.9 ± 0.7	-0.89	0.381 ^{ns}

Group A: Sulfasalazine

Group B: Methotrexate

ns=Not significant, P value reached from unpaired t-test.

Pulse, blood pressure and temperature changes were almost similar between two groups during baseline and different follow-up.

Table IV
Comparison of Laboratory reports at baseline and at follow-up in two groups.

Investigation	Group A (n=15)		Group B (n=15)		t value	P value
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD		
Hb (gm/dl.)						
Baseline	12.3 ± 1.9	13.2 ± 1.0			-1.64	0.111 ^{ns}
4 th weeks	12.3 ± 1.5	12.9 ± 1.0			-1.40	0.171 ^{ns}
8 th weeks	12.4 ± 1.8	13.0 ± 1.2			-1.12	0.273 ^{ns}
ESR (in 1 st hr.)						
Baseline	22.7 ± 18	17.0 ± 11.9			1.03	0.313 ^{ns}
4 th weeks	23.7 ± 17.9	17.0 ± 7.5			1.33	0.194 ^{ns}
8 th weeks	19.1 ± 15.1	15.3 ± 8.3			0.85	0.401 ^{ns}
WBC (×10 ⁹ /L)						
Baseline	9.2 ± 2.3	9.0 ± 1.9			0.23	0.819 ^{ns}
4 th weeks	8.1 ± 1.9	8.9 ± 1.7			-1.25	0.222 ^{ns}
8 th weeks	8.5 ± 2.3	8.9 ± 2.3			-0.37	0.715 ^{ns}
Platelet count ((×10 ⁹ /L))						
Baseline	276 ± 62.6	270.7 ± 54			0.25	0.805 ^{ns}
4 th weeks	273.7 ± 81.4	274 ± 52.5			-0.01	0.989 ^{ns}
8 th weeks	255.6 ± 36.5	259.1 ± 45.1			-0.24	0.815 ^{ns}
Serum ALT (U/L)						
Baseline	29.5 ± 11.8	24.1 ± 10.5			1.33	0.195 ^{ns}
4 th weeks	25.0 ± 9.1	26.7 ± 10.5			-0.48	0.633 ^{ns}
8 th weeks	27.8 ± 15.2	26.0 ± 7.3			0.41	0.683 ^{ns}

Group A: Sulfasalazine

Group B: Methotrexate

ns=Not significant, P value reached from unpaired t-test.

Hb%, ESR, total WBC, platelet count and serum ALT change are not statistically significant (p value >0.05) between two groups during baseline, 4th weeks and 8th weeks follow-up.

Table V
Comparison of adverse effects in two treatment groups.

Adverse effects of drug and types of adverse reaction	Group A (n=15)		Group B (n=15)		Chi value	P value
	n	%	n	%		
Adverse effects present	11	73.3	10	66.7	0.16	0.500 ^{ns}
Adverse effects absent	4	26.7	5	33.3		
List of adverse effects						
Nausea	4	26.7	2	13.3	0.83	0.500 ^{ns}
Vomiting	4	26.7	2	13.3	0.83	0.325 ^{ns}
Headache	0	0.0	1	6.7	1.03	0.309 ^{ns}
Abdominal pain	4	26.7	2	13.3	0.83	0.325 ^{ns}
Mouth ulcer	1	6.7	1	6.7	0.00	0.758 ^{ns}
Throat pain	0	0.0	1	6.7	1.03	0.500 ^{ns}
Skin rash	0	0.0	0	0.0	-	-
Anorexia	1	6.7	1	6.7	0.0	0.758 ^{ns}
Dysnea	0	0.0	0	0.0	-	-
Alopecia	0	0.0	0	0.0	-	-
Vertigo	2	13.3	2	13.3	0.0	0.701 ^{ns}
Diarrhoea	0	0.0	0	0.0	-	-
Fever	0	0	2	13.3	2.14	0.241 ^{ns}
Others	1	6.7	2	13.3	0.37	0.500 ^{ns}

Group A: Sulfasalazine **Group B:** Methotrexate

ns=Not significant, P value reached from chi square test.

Table V shows the adverse effects of drug and types of adverse effect. Adverse effects was found 11(73.3%) respondents in group A and 10 (66.7%) in group B. Nausea was found 4(26.7%) in group A and 2(13.3%) in group B. Vomiting was found 4(26.7%) and 2(13.2%) in group A and group B respectively. Headache was found not found in group A and 1 (6.7%) was found in group B. Abdominal pain was 4(26.7%) and 2(13.2%) in group A and group B respectively. Mouth ulcer was found 1 (6.7%) in group A and 1(6.7%) in group B. Throat pain was not found in group A and 1(6.7%) in group B. Anorexia was 1(6.7%) in group A and 1(6.7%) in group B respectively. Vertigo was found 2 (13.2%) and 2(13.2%) in group A and group B respectively. But there is no significant difference in two groups and 2(13.2%) in group A and group B respectively. Fever was not found in group A and 2(13.2%) in group B. Others was found 1(6.7%) and 2(13.2%) in group A and group B respectively.

Skin rash, dysnea and diarrhoea was not found in both groups. Adverse effects of drug, nausea, vomiting, headache, abdominal pain, mouth ulcer, throat pain, anorexia, vertigo, fever and others was not statistically significant (p value >0.05) between two groups.

Discussion:

The current study was conducted to evaluate the safety of sulfasalazine in the treatment of chronic plaque type psoriasis. It was carried out in the department of Dermatology and Venereology, Bangabandhu Sheikh Mujib Medical University, Shahabagh, Dhaka during the period of April 2010 to may 2011, over randomly selected thirty patients with clinically and histopathologically diagnosed chronic plaque type psoriasis. Among them 15 were (Group A) treated with Sulfasalazine 2 gram (Reumazin 500mg 4 tablets in two divided dose) and another 15 were (Group B) treated with Methotrexate 7.5mg (Methotrax 2.5 mg 3 tablet) with folic acid supplement (folison 5 mg).

Mean age of the study subjects were 34.60 ± 14.08 years with a range 47 years (13-60 years), 70.0% of patients were in the age group up to 40 years (Type-I psoriasis), which is very close to the finding of a large epidemiological study by Langely et al. who

found 75% in Type-1 psoriasis.⁷ Current study showed that both sexes affected equally (male=female=15). This finding is similar with the observation by Christopher in 2006, and Farber and Nall in 1974, which stated that there is no phenotypically difference between the sexes.^{8,9}

Only 16.66% patients gave positive family history of psoriasis that is highly apart from the report of most important field study of psoriasis in Faroe Island by Lomholt who found positive family history in about 91% respondents.⁸ This difference may be due to small homogenous population of Faroe Island. Both our finding and Lomholt's result is covered by the study of prevalence of psoriasis in Spain. who stated that familial occurrence vary from 4.4% to 90.9%.¹⁰

Itching was a presenting complaint in 86.7% of group A patients, 66.7% of group B patients and in overall 76.7% patients. In different earlier studies, itching was very variable from complete absence to severe in minority of patients.¹¹ Newbold reported that 92% consecutive patients hospitalized with psoriasis had occasional pruritus and Gupta et al. reported that 67% hospitalized psoriasis patients complained of moderate or severe pruritus.^{12,13} In our study 23.3% patients were asymptomatic. We did not consider pruritus as an outcome measure in our study, as the grading of pruritus is difficult owing to the purely subjective nature of this parameter.

Mean Psoriasis Area and Severity Index (PASI) score of Group A and Group B at baseline was 14.7 ± 4.5 and 12.5 ± 4.2 respectively ($p=0.174$). The mean PASI after 4 weeks therapy was 8.8 ± 2.6 and 8.1 ± 3.1 for Group A and Group B respectively ($p=0.468$). After 8 weeks of therapy mean PASI score was 6.0 ± 2.8 and 4.5 ± 1.4 for Group A and Group B respectively ($p=0.082$). The mean percentage of improvement of psoriasis, based on reduction of PASI at final follow up (after 8 weeks) was 59.6 ± 9.6 and 60.7 ± 13.2 in Group A and Group B respectively ($p=0.802$). There were no significant differences in PASI score and PASI reduction percentage at base line, after 4th and 8th week of therapy in two groups (A & B). Our study

design and findings are much closer to the study carried out by Bharti and Girgla in respect of study design. They compared the efficacy of Sulfasalazine to methotrexate in psoriasis, efficacy was comparable for the 2 drugs after 12 weeks trial.¹⁴ In another earlier study, Gupta et al, carried out an 8-week double-blind trial of sulfasalazine for the treatment of moderate-to-severe psoriasis, considering its low incidence of severe side effects, recommended sulfasalazine a consideration for oral therapy in patients whose disease severity does not justify use of methotrexate, etretinate, or psoralen plus UV-A, but whose disease severity is too widespread for safe and practical use of topical corticosteroids.¹⁵ A double blind trial by Menne et al of 5-aminosalicylic acid in cream base and an open study of oral sulfasalazine indicate that both of these lipoxigenase inhibitors may be effective in psoriasis treatment.¹⁶

El-Mofty et al, carried out a comparative trial on chronic plaque type psoriasis with sulfasalazine, pentoxiphylline, combined sulfasalazine and pentoxiphylline and methotrexate in four groups of patients for 8 weeks. The mean percentage of PASI score reduction was 57.09 ± 8.07 in sulfasalazine group and 80.95 ± 9.4 in methotrexate group with significant difference ($p=0.006$).¹⁷

There is strong evidence demonstrating that 50% improvement in PASI (PASI 50) is clinically meaningful endpoint.¹⁸ In our study 86.66% participants of both group achieved PASI 50 after 8 weeks. As previous studies of Sulfasalazine by Menne et al, Gupta et al, Bharti and Girgla, did not use PASI as an outcome measure, we can not compare our outcomes with them.^{16,15,14} Moreover, Bharti and Girgla used topical steroid to both groups, which might modify the outcome of systemic drugs.¹⁴ El-Mofty et al. used PASI as final outcome in their study.¹⁷ Among the four groups of their study the end results of sulfasalazine group was near to us but that of methotrexate group was different. This difference might be dose dependant because they use oral methotrexate 25 mg weekly but we used 7.5 mg in a week.

Flytström et al found 58% PASI reduction with 15 mg weekly methotrexate, which was comparable (60%) with our study.¹⁹ We found that both the drugs are effective in chronic plaque type psoriasis. Adverse effect of drug were noticed 73.3% in group A and 66.7% in group B ($p=0.500$). Nausea, vomiting, abdominal pain, and vertigo were the common adverse effects in both groups. However, they were mild to moderate in severity and did not require stop of therapy statistical differences were non-significant in two groups.

There was no significant difference in Hb percentage, ESR, total WBC count, Platelet count and serum alanine transaminase (ALT) between two groups at baseline and after 4th and 8th week of therapy. None of adverse effects of MTX in our series was serious, Whereas Saurat et al. reported adverse effects in 81.8% among 110 cases treated with Methotrexate and only 0.1% of them were severe.²⁰ The higher rate of adverse effects in their study may be due to higher dose (up to 25 mg weekly) and longer duration of treatment (16 weeks). No adverse effect was reported by Bharti and Girgla in sulfasalazine and methotrexate group.¹⁴ El-Mofty et al. reported adverse effects in only 23% patients of all 4 groups in which nausea was the commonest side effect of sulfasalazine group.¹⁷

Flytström et al reported adverse effects of methotrexate in 78% of participants where gastrointestinal side effects were common.¹⁹ So, considering comparable efficacy of sulfasalazine (Reumazine) with methotrexate (Methotrax) and reasonable adverse effects we recommend it as an alternative treatment option for chronic plaque type psoriasis.

Conclusion:

In the light of this research work, we recommend that sulfasalazine can be tried before treating with other harmful and costly antipsoriatics. Long term and large-scale studies should be carried out to evaluate the long-term efficacy, post treatment relapse and safety of sulfasalazine in chronic plaque psoriasis.

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