

Original Research Article

# A study on effect of ultrasonic therapy in combination with anti-rheumatic drug (sulfasalazine) on human joints with rheumatoid arthritis

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## Abstract

**Context:** Rheumatoid arthritis is a chronic inflammatory disorder affecting 1 million people per year in India. It is an incurable auto immune disorder affecting the joint line. **Objective:** To determine the effect of disease modifying anti-rheumatic drug (DMARD) on the affected joints when applied topically in combination with ultrasonic therapy. **Design:** Experimental Study Design **Patient:** 50 subjects with Rheumatoid Arthritis (age =70\_+ 10) **Intervention(s):** 2 groups Controlled group 25 subjects taking DMARD orally and ultrasound applied over inflamed joint. It was delivered for 5 mins with a frequency of 1MHz. Experimental group In 25 subjects the DMARD was applied topically combined with gel and was infused through ultrasonic therapy over the affected joint. Main Outcome Measure: - Using VAS (Visual analogue Scale) for pain we analyzed the prognosis of treatment. **Results:** The VAS rating of experimental group was less than the controlled group. **Conclusion:** We found that the effect of DMARD was more efficient when applied topically.

**Key Words:** VAS, DMARD, Phonophoresis.

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This will reduce the side effects of drug and may increase the longevity of joints.

## MATERIAL AND METHODS

Experimental study design. 50 subjects of Rheumatoid Arthritis suffering from joint pain.

Age group- 70<sup>±</sup>10

**Exclusion Criteria:** Subjects with joint replacement or metal implants

**Intervention:** 2 groups

**Controlled group A:** In this 25 subjects taking DMARD particularly Sulfasalazine orally were given ultrasound over inflamed joint at an intensity of 1.0W/cm<sup>2</sup> with a frequency of 1MHz for 5 minutes till 6 months. Experimental group B- In this firstly sulfasalazine was covered with oil and then broken in to pieces of less than 100nm and was mixed with the gel. The subjects in this group were not taking the drug orally. This drug mixed gel was then applied over the inflamed joint and was infused through ultrasound at an intensity of 1.0W/cm<sup>2</sup> with a frequency of 1MHz for 5 minutes till 6 months.

## INTRODUCTION

“Rheumatoid Arthritis is an auto immune disease in which body’s immune system-which normally protects its health by attacking foreign substances mistakenly attacks the joint” – from arthritis foundation. It is an incurable disease affecting large number of people around the globe. This study is to increase the efficacy of drug by applying it directly over the joint in combination with ultrasonic therapy. (Phonophoresis- It is the use of ultrasound to increase per-cutaneous absorption of drug).

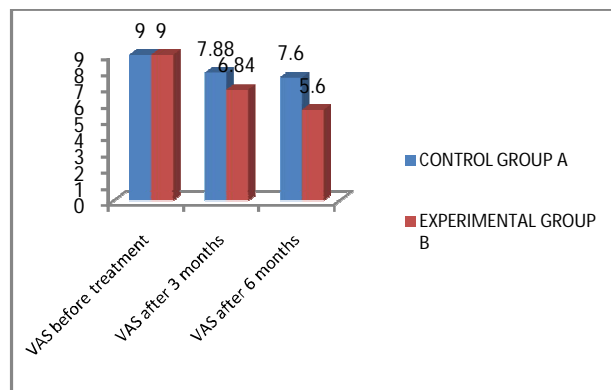
Visual Analogue Scale (VAS) was used for the statistical analysis of pain in both the groups and MS Excel was used for summation and mean calculation.

### RESULT

It was observed that the efficacy of DMARD (Sulfasalazine) was more in the experimental group as compared to control group.

**Table 1:** VAS rating before the treatment for both the groups was 9

VAS rating after 3 months.	Control group A	Experimental group B	VAS rating after 6 months	Control group A	Experimental Group B
1	8	6	8	5	
2	8	7	8	5	
3	7	7	7	6	
4	8	8	7	6	
5	8	7	8	6	
6	7	6	7	5	
7	9	7	8	6	
8	9	6	9	5	
9	7	7	7	6	
10	9	8	9	5	
11	8	7	8	7	
12	8	7	8	7	
13	7	6	7	6	
14	8	7	8	5	
15	8	8	7	5	
16	7	8	7	6	
17	9	7	8	6	
18	7	7	7	6	
19	8	6	7	5	
20	8	7	8	5	
21	7	7	7	6	
22	8	6	7	5	
23	9	7	9	5	
24	7	6	7	5	
25	8	6	8	6	
MEAN	7.88	6.84	7.64	5.6	



**Figure 1:**

### DISCUSSION

Sulfasalazine in combination with ultrasonic therapy can be more effective than oral intake for prevention of main joints. Application of drug topically had fewer side effects comparatively of that when taken orally. However this was a Single center study and therefore does not reflect true prevalence and practice throughout the country.

### CONCLUSION

It was concluded that VAS rating of experimental group was effectively reduced as compared to control group. Drug Sulfasalazine is more effective when applied topically in combination with ultrasonic therapy.

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