# Comparison of Dapsone–Pyrimethamine and Sulfadoxine–Pyrimethamine Combination in the Treatment of Acute Falciparum Malaria

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*INTRODUCTION*: Combinations of diaminodiphenysulfone (dapsone) and pyrimethamine have been shown effective in the therapy of chloroquine–sensitive falciparum infections. In the one reported, preliminary study of the treatment of presumably chloroquine–resistant infections, results were disappointing. Because information on dapsone–pyrimethamine therapy of chloroquine–resistant infections is scanty and because of its potenial therapeutic usefulness, the Ministry of Public Health expressed interest in a controlled evaluation.

*OBJECTIVE*: To study the therapeutic efficacy of a combination of dapsone, 200 milligrams, with pyrimethamine, 25 milligrams (D–P), in comparison with that of sulfadoxine, 1000 milligrams, with pyrimethamine 50 milligrams (S–P), both given as a single dose. The latter regimen is the standard single–dose antimalarial treatment administered at Prachinburi Hospital, the study site.

*DESCRIPTION*: This study was carried out over a five–month period, at the Provincial Hospital, Prachinburi Province, Northeast Thailand. Patients (both male and female) presenting with acute uncomplicated falciparum malaria with between 1,000 and 100,000 asexual parasites per cubic millimeter of blood were selected for study and hospitalized for 6 days. Subjects were randomly assigned to either the dapsone – pyrimethamine (D–P) or sulfadoxine – pyrimethamine (S–P) groups and treated. Twice daily during hospitalization, each subject was examined and capillary blood taken for quantitative parasite counts. Subjects were followed after discharge and capillary blood for quantitative parasite counts was collected on days 14, 21 and 28.

*PROGRESS*: Forty–four patients met admission criteria and were admitted to the study. Twenty–two (16 males, 6 females) were treated with dapsone–pyrimethamine (D–P) and a like number (18 males, 4 females) with sulfadoxine–pyrimethamine (S–P). The mean ages for the D–P Group were 25.2 years and 22.0 years and, for the S – P Group, 27.4 years and 28.3 years for males and females respectively. The mean admission asexual parasite counts (parasites per cubic millimeter of blood) for the D–P Group were 22,573 and 28,373 and, for the S–P Group, 29,834 and 22,290 for males and females respectively.

Forty–three of the 44 patients admitted to the study completed the specified period of hospitalization. The mean parasite clearance time for the D–P Group was 65 hours (range: 36–109) and for the S–P Group was 62 hours (range: 33–84). The mean fever defervescence time for the D–P Group was 64 hours (range: 14–112) and for the S–P Group was 56 hours (range: 18–106). Neither the mean parasite clearance times ($t=0.684$, $0.50>p>0.40$) nor mean fever defervescence times ($t=1.013$, $0.40>p>0.30$) of the D–P and S–P Groups were significantly different. There were no sex differences in either of these variables.

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Both drug regimens were well tolerated, with similar symptomatic complaints reported by the study subjects (Table 1). Symptoms of tinnitus and gastrointestinal irritation were reported somewhat more often by patients receiving D–P than by those receiving S–P.

Follow–up was completed on 38 of the 44 subjects selected for study (86%). Four of 21 D–P Group subjects were cured (19%), compared with 14 of 17 S–P Group subjects (82%). This difference is statistically significant ($X^2=12.6$, $P<0.0001$). All 17 drug failures in the D–P Group were of the R1 type. In the S–P Group, one R1 and two R2 failures were noted.

*SUMMARY*: The dapsone–pyrimethamine combination employed in this study does not appear sufficiently efficacious to warrant its use in the treatment of acute falciparum malaria. Conversely, the efficacy of the standard sulfadoxine–pyrimethamine regimen in the treatment of acute falciparum malaria is confirmed.

Table 1.
Reported Symptoms, Dapsone–Pyrimethamine and Sulfadoxine – Pyrimethamine – Treated Patients.

| Symptom | Dapsone – Pyrimethamine (22 Patients) | Sulfadoxine–Pyrimethamine (22 Patients) |
|---|---|---|
| Headache | 14 | 15 |
| Fever | 9 | 10 |
| Chills | 0 | 2 |
| Dizziness | 4 | 2 |
| Weakness | 1 | 2 |
| Tinnitus | 4 | 0 |
| Insomnia | 3 | 1 |
| Chest Pain | 0 | 1 |
| Anorexia | 5 | 3 |
| Nausea, Vomiting | 4 | 2 |
| Abdominal Pain | 6 | 0 |
| Diarrhea | 0 | 1 |
| Myalgia | 0 | 1 |
| Muscle Twitching | 0 | 1 |