

Selected Summaries

Control of scabies in endemic areas: Is mass drug administration the solution?

Romani L, Whitfield MJ, Koroivueta J, Kama M, Wand H, Tikoduadua L, Tuicakau M, Koroi A, Andrews R, Kaldor JM, Steer AC. (Kirby Institute, University of New South Wales; Department of Dermatology, St Vincent's Hospital, Sydney; Menzies School of Health Research, Charles Darwin University, Darwin, NT; and the Centre for International Child Health, University of Melbourne, Group A Streptococcal Research Group, Murdoch Children's Research Institute, and Department of General Medicine, Royal Children's Hospital, Melbourne, Victoria, Australia; Ministry of Women, Children, and Poverty Alleviation and the Ministry of Health, Suva, Fiji.) Mass drug administration for scabies control in a population with endemic disease. *N Engl J Med* 2015;**373**: 2305–13.

SUMMARY

This study reports a comparative randomized trial, the Skin Health Intervention Fiji Trial (SHIFT), conducted in the island communities in Fiji in 2012. The authors aimed to determine the change in prevalence of scabies and impetigo from baseline after 12 months of treatment with three different regimens. Three island communities (2051 participants) in Fiji were randomly assigned to one of three treatment regimens: standard care with topical permethrin cream to affected patients and their contacts (803 patients), mass administration of topical permethrin cream 5% (532 participants) and mass administration of oral ivermectin (716 participants). Of the 716 participants in the community randomized to receive ivermectin, 93 had contraindications to the use of the drug (mainly, children below 5 years of age and pregnant and lactating mothers) all of whom received topical permethrin. There was a significant decline in the prevalence of scabies at the end of 12 months in all three communities. The relative reduction in the prevalence of scabies was 94% in the ivermectin group as compared with 62% in the permethrin group ($p < 0.001$) and 49% (95% CI 37%–60%) in the standard care group ($p < 0.001$). The difference between the permethrin and standard care groups was not significant. In addition, there was a reduction in the prevalence of impetigo by 67% in the ivermectin group compared with 54% in the permethrin group and 32% in the standard care group ($p = 0.05$ for comparison with the ivermectin group). The difference between the permethrin and standard care groups was not significant for this outcome, either. Mild adverse events were noted in the permethrin and ivermectin groups (15.6% and 6.8%, respectively). Itching was the most common event (affecting 5.3% and 3.6% of participants in the ivermectin and permethrin groups, respectively), followed by headache (affecting 3.8% and 0.9%, respectively). The authors concluded that mass drug administration, particularly ivermectin, is efficacious for the control of scabies and impetigo.

COMMENT

Scabies is a highly transmissible disease caused by the mite, *Sarcoptes scabiei* var. *hominis*. The worldwide prevalence is around 100 million people.¹ It remains endemic in some tropical countries and was recognized by WHO as a neglected tropical disease in 2013.² In India, the prevalence was 13% and 82% in a

village and an orphanage.^{3,4} Although any age group can be affected, it is common in children. Infestation by the mite usually leads to itching, which can be very disabling with effects on sleep, concentration and other daily activities. There may be considerable time and cost expenditure as the treatment extends to the contacts of the patient. In addition, secondary bacterial skin infections (e.g. impetigo) are common. Even though the risk of cardiac and renal immune-mediated diseases following such bacterial infections is miniscule, a considerable number of cases may occur when a large population is affected.

Various oral and topical anti-scabietic agents are available. Choice of treatment is usually determined by availability, cost and physician preference. Treatment options include 5% permethrin cream, 10% and 25% benzyl benzoate lotion/emulsion, 1% gamma benzene hexachloride cream/lotion, 1% ivermectin lotion, 2%–10% precipitated sulphur ointment, 10% crotamiton cream and oral ivermectin. In a Cochrane review of 22 trials, 5% permethrin cream was found to be more effective than topical lindane, topical crotamiton and oral ivermectin.⁵ However, these studies were conducted in outpatient settings rather than in institutional or community settings.

In a study comparing ivermectin and benzyl benzoate in closed communities in two villages in Fiji, the prevalence of scabies fell from 37.9% to 20% in the benzyl benzoate group and from 23.7% to 9.5% in the ivermectin group after 4 weeks of treatment.⁶ Two non-comparative studies of mass administration of oral ivermectin and 5% permethrin cream were undertaken in the Solomon Islands and San Blas islands of the Republic of Panama, respectively. The prevalence of scabies fell from 33% to 1.5% and 25% to 0.7%, respectively.^{7,8} However, the sustained fall in prevalence was maintained in both the islands due to active case finding and retreatment for 3 years. Further, in Solomon islands, 15 years after the end of mass treatment, the prevalence was found to be as low as 3.4%.⁷ On the other hand, interruption of treatment for 3 weeks in the islands of Panama resulted in a prevalence of 12% at 3 months.⁸

In the present trial, the recruited sample consisted of around 85% of the total population. Due to high rate of transmission of scabies, mass treatment may produce less than expected outcomes even if a few patients are left untreated. Also, loss to follow-up at 12 months was high, ranging from 21.6% to 28.3% in the three communities.

This study has shown that mass administration of oral ivermectin (supplemented with topical permethrin in those in whom the drug is contraindicated) in island communities was effective in reducing the prevalence of scabies. This strategy worked better than the use of topical permethrin either as standard care or for mass administration, both of which incidentally did about equally well. This prompts the question: How would ivermectin used as standard care have compared with mass administration since the former would be more acceptable to most communities?

It is doubtful whether these results from closed island communities are generalizable to the rest of the world. Health policy decisions will instead have to be based on studies undertaken in areas that see considerable movements of people to reflect the situation in rural and urban communities of developing countries most affected by scabies.

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