

Milk powder better than liquid drops to treat milk allergies

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(Medical Xpress) -- A small study by researchers at the Johns Hopkins Children's Center and Duke University shows that eating higher doses of milk protein in the form of dry powder substantially outperforms lower-dose therapy — a few drops of liquid milk extract under the tongue — for treatment of food allergies.

Both approaches are designed to give allergic [children](#) progressively higher doses of milk protein, a strategy to retrain their immune systems to tolerate the product. Overall, half of the 30 patients in the study were able to take 8 grams of milk protein — the equivalent of 8 ounces of liquid milk — without any sign of allergic reaction at the end of the two-year trial, but a comparison of the two approaches showed the dry milk route to be superior. Most children treated with the dry-milk approach could eventually introduce real amounts of milk in their diets with fewer and milder reactions over the course of the two-year trial.

A report on the research, involving patients ages 6 to 17 with moderate to severe milk allergies, is published online ahead of print in the *Journal of Allergy and Clinical Immunology*. Previously published studies by the same research team have shown that both approaches can ease allergic symptoms, but this is the first head-to-head comparison of the two therapies in terms of efficacy and side effects, the scientists say.

“Our findings underscore important differences between the two approaches and set the stage for further research into the best possible treatments for children with severe food allergy,” says principal

investigator Robert Wood, M.D., director of Allergy & Immunology at Johns Hopkins Children's Center.

Six of the 15 children who gained full tolerance and passed the milk challenge lost some of the therapeutic effects quickly once they stopped drinking milk daily, the researchers reported. The finding, they say, highlights the importance of regular milk consumption to preserve tolerance and avoid a relapse.

All children were initially treated with milk drops under the tongue, known as sublingual immune therapy (SLIT), for several weeks until they built up some tolerance. Afterward, they were randomly assigned to one of three groups. Ten children remained on the SLIT treatment with 7 milligrams of milk — about one-twentieth of a teaspoon — under the tongue daily. Ten children were assigned to eat 1 gram of milk protein in the form of dry powder daily — equal to about 1 ounce of milk — and the other 10 children consumed 2 grams of milk powder per day.

The drops-under-the-tongue approach was markedly less effective in improving milk tolerance. Only one of the 10 children treated with SLIT passed a food challenge that required them to drink 8 ounces of milk at the end of the trial. By contrast, 14 out of the 20 children who ate milk powder, an approach known as oral immunotherapy (OIT), successfully passed the food challenge. Within the OIT group, children on the higher daily dose had the greatest improvement, leading researchers to believe that efficacy is dose-dependent. Six of the 10 who consumed 1 gram of milk powder per day passed the milk challenge, compared with eight of the 10 on 2 grams daily.

However, children in the milk-powder group were more likely to experience serious allergic reactions, including abdominal pain and difficulty breathing with daily doses, compared with children given milk drops under the tongue, the researchers noted.

To determine whether and how well milk tolerance persisted after the two-year treatment, the investigators asked the 15 patients who passed the 8-gram challenge to abstain from milk and return for follow-up challenges one week and six weeks later. Six of the 15 children had allergic reactions after abstinence — two of them within only a week.

Still, even children who had a relapse did so only after consuming much higher doses of milk than before treatment — about a cup, compared with a teaspoon of it before the study. Importantly, all children in the OIT group, whether or not they passed the final food challenge, successfully introduced milk in their daily diets, including up to a cup of ice cream or a whole slice of cheese pizza, both of which contain significant amounts of [milk protein](#).

“It is encouraging to know that children who in the past might have suffered violent reactions to microscopic amounts of [milk](#) now have no reactions or only mild reactions to a much higher dose and that their quality of life can improve dramatically,” said lead investigator Corinne Keet, M.D., M.S., a pediatric allergist at Hopkins Children’s Center.

The investigators warn that both therapies can lead to serious allergic reactions and neither should be tried without close medical supervision.

More information: www.jacionline.org/

Provided by Johns Hopkins University

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