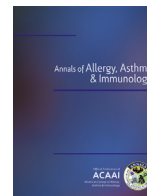




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Letter

Lack of allergenic soy in intralipid for total parenteral nutrition

The patient, a 36-year-old woman who was 29 weeks pregnant (gravida 1, para 0), presented with small bowel obstruction that required surgery. After surgery, the patient developed ileus and could not tolerate oral feeding. After consultation with a neonatologist, it was determined that the patient needed total parenteral nutrition (TPN) with lipids (intralipid soy parenteral nutrition) to support fetal growth. The nonlipid preparation of TPN does not supply essential fats or the total caloric requirements needed for fetal growth and development. Intralipid 20% (a 20% intravenous [IV] fat emulsion) contains 20% soybean oil, 1.2% egg yolk phospholipids, 2.25% glycerin, and water for injection. The soybean oil is a refined natural product that consists of a mixture of neutral triglycerides of predominantly unsaturated fatty acids.

The patient had a history of severe itching and swelling of her mouth and throat immediately after ingesting soy products since childhood. The only lipid TPN that does not contain soy is Omegarin, which is not approved by the Food and Drug Administration (FDA). The FDA was contacted to obtain a compassionate-use waiver for the use of Omegarin; however, this was not granted. Because the lipid-containing TPN was considered essential for fetal growth and with the informed consent of the patient, a decision was made to desensitize the patient to the lipid-containing TPN product.

The patient was pretreated with antihistamines and transferred to the intensive care unit, where an anesthesiologist, obstetrician, and neonatologist were immediately available. Rapid IV desensitization was initiated using a protocol developed by Mariana Castells, MD, PhD, at Brigham and Women's Hospital in Boston, Massachusetts, for desensitization to chemotherapeutic agents and biological modifiers.¹ The patient was under continuous monitoring by an intensive care unit nurse and an allergist/immunologist, who evaluated the patient for signs and symptoms of an allergic reaction. Vital signs were obtained every 15 minutes.

The patient tolerated desensitization without reaction or change in vital signs. Blood samples obtained before desensitization, during desensitization, and after desensitization and a sample of the 20% IV fat emulsion were sent to Robert Hamilton, PhD, at Johns Hopkins Asthma and Allergy Center for analysis. Unfortunately, the blood samples from the patient were not properly handled at our institution. The level of IgE antibodies to soy in the patient's blood

was 0.13 kUa/L, which is extremely low. Analysis of the 20% IV fat emulsion consisted of competitive inhibition in which 2 IgE antisoy serum samples were preincubated with the emulsion or buffer (sham control) for 2 hours. Both the buffer and the emulsion produced the same level of IgE antisoy antibodies, indicating no detectable soy allergen in the emulsion preparation. The patient's low specific IgE levels to soy suggest that she would not have developed symptoms even if the TPN product had contained soy.

This case leaves unanswered the question of whether another patient with high serum levels of IgE for soy could safely undergo IV desensitization to soy. Nevertheless, this case is important because (1) there is no previous report of attempted IV desensitization to a food product, (2) there is no previous report of attempted desensitization during pregnancy, and (3) it is important to recognize that labeled components of a product after processing and refinement may no longer be allergenic. The IV TPN supplement, although labeled as containing soy, does not in fact contain any allergenic soy. Because there was no detectable soy allergen in the 20% IV fat emulsion product, desensitization should not be necessary in patients who have a history of allergy to ingested soy and need to receive this product. This case also illustrates the need to consider the management of anaphylaxis in a pregnant patient,² which may require a coordinated effort among the allergist/immunologist, anesthesiologist, neonatologist, and the patient's obstetrician.

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