Anaphylactoid Reactions to IV Gadopentetate Dimeglumine

Since its introduction as a contrast agent for MR imaging, the efficiency and relative safety of gadopentetate dimeglumine have been well demonstrated [1, 2]. Although extremely rare, serious anaphylactoid reactions to this agent can occur. We present a case of severe bronchospasm, dyspnea, and periorbital edema that occurred after the administration of IV gadopentetate dimeglumine.

Case Report

A 33-year-old obese woman was referred for MR because of progressive bilateral loss of vision. Review of systems was negative for asthma, allergies, or previous drug sensitivities. Physical examination showed papilledema. Unenhanced sagittal T1-weighted and axial T2-weighted MR images obtained with a 1.5-T Philips system showed a communicating hydrocephalus with marked enlargement of the lateral and third ventricles.

After informed consent was obtained, 0.10 mmol/kg gadopentetate dimeglumine (Berlex Laboratories, Inc., Cedar Knolls, NJ) was administered IV. Shortly thereafter, the patient started to sneeze, became nauseated, and was removed from the imager. She complained of facial tightness, hoarseness, and difficulty in breathing. Physical examination 2 min later showed marked periorbital edema. The patient was lying in a hunched position and was gasping for air. Her voice was hoarse, and her speech was labored. Her blood pressure was 145/86 mm Hg, and her pulse was regular although tachycardic. She was given 25 mg of Benadryl (diphenhydramine) IV, 0.2 ml of a 1:1000 solution of epinephrine subcutaneously, and an oxygen face mask. Her condition stabilized and gradually started to improve over the next 10 min. An additional 25 mg of Benadryl and 80 mg of methylprednisone sodium succinate were administered IV. The patient then was admitted to the intensive care unit for observation. Further clinical improvement occurred overnight. The following day she was transferred to the neurosurgery unit, and a high-pressure ventricular shunt was placed to treat her communicating hydrocephalus.

Discussion

As the diagnostic value of contrast-enhanced MR imaging has become evident [3], gadolinium is being used with increased frequency in radiologic practices. Although no loss of life associated with the use of IV gadopentetate dimeglumine has been reported (LaFlore J, Berlex Imaging, personal communication), a similar anaphylactoid reaction has been described by Weiss and Jhaveri (paper presented at the 1990 annual meeting of the Society for Magnetic Resonance Imaging). This reaction consisted of facial swelling, a "hot-potato" voice, and difficulty breathing. Treatment with epinephrine, Benadryl, hydrocortisone sodium succinate, and oxygen was successful. According to Berlex Laboratories, five anaphylactoid reactions to gadopentetate dimeglumine have been reported: two cases in the United States (this case and the case of Weiss and Jhaveri), two in Japan, and one in Finland. As of March 1, 1990, 772,569 vials of gadopentetate dimeglumine have been distributed. This is estimated by Berlex to represent 1.1 million doses (McAvee T, LaFlore J, Berlex Imaging, personal communication). Thus, the frequency of anaphylactoid reactions is approximately one per 200,000 doses. Because the exact number of doses of gadopentetate dimeglumine that have been administered is uncertain, and because detailed histories are not available for all of the reported anaphylactoid reactions, this statistic must be interpreted cautiously. Although the chance of a life-threatening reaction is low, it would be prudent to have resuscitation materials and personnel trained in their use available to recognize and treat such a rare reaction quickly.

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REFERENCES

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3. Brasch RC. Safety profile of gadopentetate dimeglumine. *MRI Decisions* **1989**;3:13–19

The reader's attention is directed to the commentary on this article, which appears on the following pages.