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Seizure After Intrathecal Administration of Iopamidol

John C. Lipman,[1] Ay-Ming Wang, Michael L. Brooks, Robert M. Schick, Calvin L. Rumbaugh

Serious adverse reactions after myelography with nonionic contrast media are relatively rare. No cases of encephalopathy and only one of seizure have been reported with intrathecal iopamidol. We describe two patients who had a seizure after iopamidol myelography in a retrospective series of 236 consecutive patients between April 1986 and September 1987 to emphasize that serious reactions to intrathecal iopamidol may be more common than reported in the literature.

Case Reports

Case 1

An 18-year-old man with low back pain radiating to the right buttock and thigh had lumbar stenosis on CT. A lumbar myelogram was performed via lumbar puncture at the L2–L3 level with a 22-gauge spinal needle. Under fluoroscopy, 12 ml of iopamidol (Isovue-M 200) was instilled into the subarachnoid space. The patient tolerated the procedure without complaint; however, several hours after returning to his room, he had a witnessed grand mal seizure. He received a loading dose of 1 g of diphenylhydantoin given intravenously over 3 hr and was started on a daily maintenance dose of 300 mg. This was administered for 7 days without further incident. The medication was discontinued the day before his discharge from the hospital and there have been no further neurologic sequelae. The patient had no previous history of seizures, hypersensitivity to iodinated contrast material, or use of medications known to lower the seizure threshold.

Case 2

A 45-year-old Vietnam veteran presented as an outpatient for cervical myelography to evaluate a possible brachial plexus avulsion after a vehicular accident 2 months earlier. His right clavicle had been fractured during the accident and he had major loss of motor and sensory function in the right arm and hand. A head CT scan showed no evidence of intracranial hemorrhage or mass lesion.

The patient's past medical history is significant for two other incidents of head trauma. The first was a rugby injury with fracture of a zygoma and subsequent facial reconstruction. It is unclear whether he lost consciousness at that time; in the other incident, a grenade blast resulted in shrapnel injury to the scalp without skull fracture or intracranial injury. He reported no history of seizures, drug abuse, or use of alcohol for the past 10 years. His only medication was the loading dose of diphenylhydantoin given prophylactically in preparation for the cervical myelogram. He received 500 mg each day for the 2 days preceding the myelogram and 500 mg the day of the examination. A cervical myelogram was performed via lumbar puncture using a technique similar to that described in case 1. Iopamidol (Isovue-M 300) was used in a dose of 10 ml. The patient tolerated the procedure but suffered several generalized seizures immediately after the examination. The patient was transferred to the medical intensive care unit for observation. He continued to have seizures for several days despite adequate blood levels of diphenylhydantoin and later diphenylhydantoin and phenobarbital. EEG at this time showed diffuse slow wave activity without evidence of focal abnormality. Tegretol was substituted for phenobarbital and by the sixth hospital day the patient was transferred to a general medical floor without further seizure. Repeat EEG was normal.

Discussion

Nonionic contrast media have caused fewer adverse effects than agents previously used to evaluate the spine. Metrizamide was the first such agent to gain wide acceptance, replacing oil-soluble contrast agents, such as Pantopaque, and allowing examination of the entire spinal subarachnoid space with much less chance of subsequent arachnoiditis. The experience with metrizamide is vast in comparison with the newer contrast agents, and the types and incidence of adverse reactions are well known. These include seizure and neuropsychologic reactions (behavioral disturbances, confusion, amnesia, agitation, hallucinations), which occur with a frequency of 13–38% [1, 2].

Because adverse reactions of some type were still relatively frequent, a new generation of nonionic agents emerged, including iopamidol. Clinical trials showed iopamidol to be safe and effective, with fewer side effects than metrizamide [1, 3, 4]. Many of these trials, however, involved fewer than 40 patients. Although iopamidol was shown to be more epileptogenic than metrizamide in an animal study by Gonsette and Brucher [5], only one previous case report involving seizure has been reported [6]. In that report, 20 ml of iopamidol at a concentration of 300 mg/l ml was used, a weight of iodine (6 g) that exceeds a weight recommended by the United States distributor for iopamidol [4]. In both our cases the weights

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[1] All authors: Department of Radiology, Harvard Medical School and Brigham and Women's Hospital, 75 Francis St., Boston, MA 02115. Address reprint requests to J. C. Lipman.

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were well below this recommended dosage. Our experience suggests that the frequency of related seizure is higher than published experience would suggest.

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