

# Inadvertent intrathecal injection of unapproved contrast agents

✖ Caution: serious reactions can occur with inadvertent [intrathecal](#) injection (e.g. for [myelography](#), [cisternography](#), [ventriculography](#)...) of [iodinated contrast media](#) that are not specifically indicated for intrathecal use (including ionic contrast agents as well as some non-ionic agents (e.g. Optiray®, Reno-60...)). This can cause uncontrollable seizures, [intracerebral hemorrhage](#), cerebral edema, coma, paralysis, arachnoiditis, myoclonus (tonic-clonic muscle spasms), rhabdomyolysis with subsequent renal failure, hyperthermia, and respiratory compromise, with a significant fatality rate.

Management suggestions for inadvertent intrathecal injection include:

1. immediately remove CSF + contrast if the error is recognized when the opportunity is available (e.g. withdraw fluid through myelography needle)
2. elevate the head of bed  $\approx 45^\circ$  (to keep contrast out of head)
3. if there is a question about what may have occurred (i.e., it is not certain if an inappropriate contrast agent was used), send blood and CSF with contrast for high-performance liquid chromatography for identification of the agent
4. antihistamines: e.g. diphenhydramine (Benadryl®) 50 mg deep IM
5. respiration: supplemental oxygen, and if needed, intubation
6. control HTN
7. IV hydration
8. IV steroids
9. sedation if the patient is agitated
10. treat the fever with acetaminophen and if needed with a cooling blanket
11. pharmacologic paralysis if necessary to manage muscle activity
12. anticonvulsant medication: more than one agent may be required (e.g. phenytoin + phenobarbital + a benzodiazepine)
13. consider unenhanced brain CT scan: may help assess if contrast has diffused intracranially, but this requires placing patient flat and may not be advisable
14. insert lumbar subarachnoid drain with CSF drainage (e.g. 10ccqhr)
15. monitor: electrolytes, anticonvulsant levels, creatine phosphokinase (CPK)
16. repeat EEGs to assess seizure activity while sedated/paralyzed

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