

## ANAPHYLACTOID REACTION TO MANNITOL

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MANNITOL, a hexahydric alcohol closely related to the hexose sugars, has been used in clinical medicine for its osmotic diuretic qualities in a variety of situations. Since adverse reactions to mannitol, often benign, have been reported infrequently<sup>1</sup> we present an additional instance of a reaction apparently due to this drug.

### CASE REPORT

The patient was an 18-year-old Caucasian male, weighing 68 kg, who was admitted to hospital because of a two-month history of painless visual loss in the right eye.

A tonsillectomy was done at three years of age because of nasal stuffiness and recurrent colds. Several episodes of eczema, wheezing and nasal stuffiness occurred during childhood. Intradermal skin testing to a variety of allergens was done at age six. Past medical history was otherwise not relevant. The patient was taking no medications.

Physical examination was normal except for the right eye. Visual acuity on the right was 20/40 and with pin-hole 20/25 + 2. Slit lamp examination revealed the iris inferiorly to be pushed forward towards the anterior chamber. Intraocular pressure was 14 mm Hg on the right and 10 mm Hg on the left. Routine laboratory investigation was normal.

A right partial iridectomy for local excision of a tumour was scheduled. Because of recent ingestion of food, metoclopramide 10 mg was given intramuscularly at 1200 hrs. This was followed by the application in the right eye of one neosporin ophthalmic drop every 5 minutes  $\times$  3. One cyclopentolate one per cent eye drop was instilled at 1230 and at 1245 hrs. A 300 ml infusion of mannitol 20 per cent (ABBOTT) was started at 1235 hrs. Five minutes later, following the infusion of 75 ml, the patient started sneezing, became wheezy and developed periorbital swelling.

Physical examination revealed a blood pressure of 90/60 mm Hg, pulse 96/min and marked

periorbital oedema. Moderate respiratory distress was present. Inspiratory and expiratory rhonchi and decreased air entry were heard on auscultation. The mannitol infusion was stopped. Diphenhydramine hydrochloride 20 mg and hydrocortisone 100 mg were given intravenously. Respirations returned to normal within 30 minutes and the periorbital oedema became less prominent within two hours.

The operation was cancelled until four days later, when a localized melanocytoma was excised uneventfully from the right eye under general anaesthesia.

### DISCUSSION

The osmotic diuretic qualities of mannitol have been used for prophylaxis against acute renal failure, differential diagnosis of acute oliguria and reduction of cerebrospinal and intraocular fluid pressures.<sup>1</sup> Serious complications such as pulmonary congestion following mannitol infusion are well described and may occur with any osmotic diuretic given in sufficient dosage to a susceptible patient. However, an anaphylactoid reaction to a simple carbohydrate such as mannitol is very uncommon. A search of the literature revealed only one comparable reaction,<sup>2</sup> which interestingly occurred in similar circumstances.

Although we considered the possibility of an adverse reaction to another drug, this was discounted. We were unable to locate reports of an allergic reaction to metoclopramide. The only other medications received before the reaction were topical neosporin and cyclopentolate. The infusion set used was fresh. The mannitol was a commercial preparation from a previously unopened bottle. We have no knowledge of similar reactions to bottles of the same batch of mannitol occurring in our hospital.

Mannitol is known to occur widely in nature, especially in fungi. The patient's history of childhood atopy was probably a predisposing factor for the occurrence of an anaphylactoid drug reaction. Unfortunately, he became unavailable for skin testing. The temporal relationship of our patient's reaction during intravenously administered mannitol and its prompt resolution follow-

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ing cessation of infusion and institution of therapeutic measures indicated to us a strong causal relationship.

Anaesthetists should be aware of this unusual but important reaction to this commonly used and generally innocuous medication.

#### SUMMARY

A 16-year old boy with a lesion of the right eye developed, during the preoperative administration of a mannitol infusion, an anaphylactoid reaction characterized by hypotension, periorbital oedema and bronchospasm. This quickly resolved following cessation of the infusion and appropriate therapeutic measures. There were no long-lasting effects. We considered mannitol the causative agent because of its temporal relationship to the reaction and our inability to seriously implicate any other medication. A history of childhood atopy may have been a predisposing factor.

#### RÉSUMÉ

Un garçon de 16 ans atteint d'une lésion tumorale de l'œil droit a présenté une réaction

anaphylactique caractérisée par de l'hypotension, de l'œdème périorbitaire et du bronchospasme lors de la perfusion de mannitol à la période pré-opératoire. L'arrêt de la perfusion et des mesures thérapeutiques appropriées ont permis une récupération rapide et sans séquelles. La séquence des événements et l'élimination des autres médicaments nous permet d'impliquer le mannitol comme agent causal. Une histoire d'atopie infantile pourrait être un facteur prédisposant.

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