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Immediate reaction to gadolinium based contrast agent with fatal outcome

Dear Professor Chew,

We read with great interest the case report of "Fatal anaphylactic reaction to intravenous gadobutrol, a gadolinium-based MRI contrast agent" by Dr Franckenberg et al. [1] where the 42-years-old patient did not respond to an H2 blocker, steroids, and cardio pulmonary resuscitation (CPR) and dying within 1 hour in spite of being transferred to a University Hospital.

The extraordinarily low incidence of immediate-type allergic reactions to GBCAs and the current focus on chelate stability and gadolinium retention has shifted attention away from this important aspect of GBCA safety [2]. However, in situations where there is increased allergic reaction risk it may be useful to consider immediate adverse reaction rates when selecting which GBCA to administer. As an example, gadodiamide has been shown in a recent meta-analysis to have 10-fold lower risk of immediate adverse events compared to gadobutrol [3].

Situations where GBCA allergic reaction risk may be considered more important than GBCA stability include imaging centers which require transferring the patient to a hospital in the event of a life-threatening immediate reaction, with associated delay in critical care. Additional patient risk factors include history of allergic reaction to GBCA or other contrast agents, asthma, atopia, and patients with tenuous health who might not survive anaphylactic shock [3]. Epinephrine IV (0.1 mg administered as 1 ml of 1:10,000 dilution) or IM (0.3 mg administered as 0.3 ml of 1:1000 dilution) is the drug of choice for anaphylaxis [4] and we always maintain the IV after GBCA administration until we are comfortable that the patient is not having any serious reaction. If epinephrine is contraindicated or not available, this also represents a higher risk situation where one could consider using a GBCA with a lower rate of immediate adverse events.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.radcr.2018.06.009.

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[4] ACR Contrast Media Manual version 10.3, Table 3, page 116 https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf#page=100 accessed April 20, 2018.

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