Oh My Gad! Gadolinium Deposition Demystified

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Purpose:
The extracranial deposition of Gadolinium following the use of Gadolinium-based contrast agents (GBCAs) has historically been well documented. In recent years, an increasing number of studies have demonstrated evidence of intracranial Gadolinium deposition. This educational exhibit aims to provide a review of these findings as well as provide guidance for the proper usage of GBCAs and suggestions for future investigations.

Materials/Methods Used:
Provide an introduction to Gadolinium (Gd) and Gadolinium-based contrast agents (GBCAs).

Summarize the current literature on GBCA deposition.

Examine the controversies regarding unresolved questions and clinical applications of these findings.

Results:
Gd deposition occurs in the brain with highest amount in the dentate nucleus.

Degree of deposition corresponds with cumulative dose of GBCAs.

Amount of deposition is significantly higher with linear agents.

Majority of deposition occurs in the capillary endothelium with some in the neural interstitium, suggesting ability to cross the blood-brain barrier.

Deposition occurs even with normal renal function.

Conclusions:
Further questions remain regarding: the chelation state of deposited Gd, the capacity for clearance, and the clinical significance of these findings, especially in pediatric patients, women of childbearing age,
and patients who may require frequent exams. Until then, all radiologists should ensure that contrast is required, select the best possible agent and dose, and document accurately when administering GBCAs.

**Primary Category:**

Quality and Safety

**Area of Focus:**

Diagnostic Radiology