

Journal Club

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Citation

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Abstract

Nephrogenic Systemic Fibrosis

Article---Nephrogenic Systemic Fibrosis: Risk Factors and Incidence Estimation . Radiology 2007;243:148-157

Authors-Elizabeth A. Sadowski, MD, Lindsey K. Bennett, MD, Micah R. Chan, MD, Andrew L. Wentland, BS, Andrea L. Garrett, MD, Robert W. Garrett, MD and Arjang Djamali, MD

“Authors retrospectively reviewed data in 13 patients with biopsy-confirmed nephrogenic systemic fibrosis (NSF), assess the associated risk factors, and report the incidence of NSF at the authors' institution. Within 6 months of diagnosis, all 13 patients had been exposed to gadodiamide and one had been exposed to gadobenate dimeglumine in addition to gadodiamide. At the time of contrast material-enhanced magnetic resonance (MR) imaging, all 13 patients had renal insufficiency (estimated glomerular filtration rate [eGFR] < 60 mL/min/1.73 m²) and were hospitalized for a proinflammatory event (major surgery, infection, or vascular event). It was concluded that a combination of factors, including altered kidney function, inflammatory burden, and exposure to gadolinium-based contrast agents may all play a role in development of NSF”

Key Message from the article

Development of NSF is strongly associated with gadodiamide administration in the setting of either acute hepatorenal syndrome or dialysis-dependent chronic renal insufficiency.

Discussion

Nephrogenic systemic fibrosis (NSF) is a rare multisystemic fibrosing disorder that principally affects the skin but may affect other organs of patients with renal insufficiency. It is a newly recognized cutaneous fibrosing disorder marked by the acute onset of induration involving the upper and lower

limbs in patients with acute or chronic renal failure. There is growing recognition of the association between the use of gadolinium-containing radiocontrast agents for magnetic resonance imaging and the serious dermal and systemic disease nephrogenic fibrosing dermatopathy/nephrogenic systemic fibrosis (NFD/NSF). The pathogenesis of this entity remains unclear; however, recent observations suggest a likely mechanism for the initial dermal manifestations of this gadolinium toxicity

Related articles

Gadolinium is detectable within the tissue of patients with nephrogenic systemic fibrosis. [J Am Acad Dermatol. 2007

Nephrogenic fibrosing dermatopathy associated with exposure to gadolinium-containing contrast agent--St. Louis, Missouri, 2002-2006. [MMWR Morb Mortal Wkly Rep. 2007]

Gadolinium--a specific trigger for the development of nephrogenic fibrosing dermatopathy and nephrogenic systemic fibrosis? [Nephrol Dial Transplant. 2006]

NSF in Radiology Blogs—

Gadolinium and nephrogenic systemic fibrosis have been the hot topic around the radiology blogosphere for last some time, here are the links—

Gadolinium related to Nephrogenic Systemic Fibrosis?

URL-

<http://sumerdoc.blogspot.com/2006/08/gadolinium-related-to-nephrogenic.html>

New ACR guidelines on Gadolinium in End-Stage Renal Disease

URL-

<http://sumerdoc.blogspot.com/2007/03/new-acr-guidelines-o>

n-gadolinium-in-end.html

Safety warning: Nephrogenic Systemic Fibrosis (NSF) and gadolinium

URL-

<http://pengrad.blogspot.com/2007/02/safety-warning-nephrogenic-systemic.html>

Key Message from the Blogs-

- Do not use Omniscan (gadodiamide) in patients with severe renal impairment (ie, GFR [glomerular filtration rate] $<30\text{ml/min/1.73m}^2$)
- Careful consideration should be given to the use of other gadolinium-containing MRI contrast agents in patients with severe renal impairment (ie, GFR $<30\text{ml/min/1.73m}^2$).

References

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