

Editorial Comment

Despite advances in technology and surgical techniques the promise of a complete negative surgical margin for radical prostatectomy seems to be a Chimera. Recent reports demonstrate stable results for positive surgical margins in large series of radical prostatectomies but it seems always intimately related to surgeons experience and performance rather than the surgical technique utilized. Patel and colleagues should be commended for their effort of demonstrating a multi-institutional study which the common factor is the use of robotic technology to perform radical prostatectomies for prostate cancer. The PSMs are comparable to open series and conclusions about the superiority of the robotic technology were not noted in the conclusion by the authors. On multivariate analysis pathological stage and preoperative prostate specific antigen (4 or less vs greater than 10 ng/mL OR 2.918, $p < 0.001$) were the most important independent predictive factors for positive surgical margins after robotic assisted radical prostatectomy. Curiously, heavier prostates were associated with a lower risk of positive surgical margins after robotic assisted radical prostatectomy and a higher body mass index was associated with a higher risk of positive surgical margins. For organ confined disease pre-operative prostate specific antigen was the most important factor that independently correlated with positive surgical margins.

Studies have demonstrated that even after approximately 3 decades of research trying to achieve the perfect radical prostatectomy seems to be a daunting task due to lack of complete understanding of the surgical landmarks and the suboptimal imaging and diagnostic tests to pre-operatively evaluate the true localization of the cancer in the prostate.

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IMAGING

Incidence of Nephrogenic Systemic Fibrosis after Adoption of Restrictive Gadolinium-based Contrast Agent Guidelines

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Purpose: To retrospectively determine the incidence of nephrogenic systemic fibrosis (NSF) in a large academic medical center after the adoption of restrictive gadolinium-based contrast agent (GBCA) administration guidelines.

Materials and Methods: For this retrospective HIPAA-compliant study, institutional review board approval was obtained and the requirement for informed consent was waived. Restrictive GBCA guidelines were adopted in May 2007. The guidelines (a) require a recent serum creatinine level measurement in any patient who is aged 60 years or older and/or at risk for renal disease, (b) limit the maximal weight-based GBCA dose administered to any patient with an estimated glomerular filtration rate (eGFR) lower than 60 mL/min/m(2)

to 20 mL, and (c) prohibit the administration of any GBCA in patients who have an eGFR lower than 30 mL/min/m(2) and/or are undergoing chronic dialysis treatment (except in emergency situations). The electronic medical records were searched for all contrast material-enhanced magnetic resonance (MR) imaging examinations performed during the post-guidelines adoption period between January 2008 and March 2010 and the pre-guidelines adoption and transitional period between January 2002 and December 2007. Separate pathology records were searched for biopsy-confirmed cases of NSF during the same study periods. The incidences of NSF during the pre-guidelines adoption and transitional period and post-guidelines adoption period were compared by using the paired Z test.

Results: A total of 52 954 contrast-enhanced MR examinations were performed during the post-guidelines adoption period. Of these 52 954 examinations, 46 464 (88%) were performed in adult patients with an eGFR of 60 mL/min/m(2) or higher or presumed normal renal function and 6454 (12%) were performed in patients with an eGFR of 30-59 mL/min/m(2). Thirty-six patients with an eGFR lower than 30 mL/min/m(2) underwent contrast-enhanced MR imaging for emergent indications. Review of the pathology records for January 2008 to September 2010 revealed no new cases of NSF resulting from GBCA exposure.

Conclusion: After restrictive guidelines regarding GBCA administration were instituted, no new cases of NSF were identified among 52 954 contrast-enhanced MR examinations, including those performed in patients with an eGFR lower than 60 mL/min/m(2).

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More than 300 cases of nephrogenic systemic fibrosis (NSF) have been described since 2000. This important complication occurred in patients with severe chronic renal insufficiency or acute renal failure or in patients undergoing dialysis, usually within weeks to months after receiving intravenous injection of a high dose of gadolinium based contrast agent. Besides impaired renal function other important risk factors for developing NSF are pro-inflammatory conditions, failure to perform dialysis promptly after gadolinium injection, use of nonionic linear contrast agents and hyperphosphatemia (1).

The authors demonstrate that in their institution, strict obedience to a well designed restrictive guidelines, allowed the elimination of cases of NSF in a large number of patients (nearly 53.000). Similar guidelines to this study are used nowadays in several centers worldwide explaining the massive reduction in the number of patients with this complication in the last two years. As pointed out by the authors, cooperation between radiologist and referral physician is essential in order to accomplish optimized use of gadolinium-based contrast agents whenever its use is mandatory.

Another important aspect that favorably contributed to the reduction of number of patients with NSF was the development and progressively improvement of magnetic resonance techniques that allow vascular imaging without the use of intravenous injection of contrast material.

Reference

1. Prince MR, Zhang HL, Prowda JC, Grossman ME, Silvers DN: Nephrogenic systemic fibrosis and its impact on abdominal imaging. *Radiographics*. 2009; 29: 1565-74.

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