NSsaFe study: Observational study on the incidence of nephrogenic systemic fibrosis in renal impaired patients following gadoterate meglumine administration.

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Purpose: Nephrogenic Systemic Fibrosis (NSF) has been reported to occur in patients with impaired renal function after administration of gadolinium-based contrast agents (GBCAs) for Magnetic Resonance Imaging (MRI) [1, 2]. The aim of this prospective study is to evaluate the occurrence of adverse reactions with special focus on NSF after administration of gadoterate meglumine (Dotarem®) in a large series of patients with moderate, severe and end stage renal insufficiency and after renal transplantation.

Methods: An ongoing worldwide post-marketing study (PMS) is conducted to collect safety data in 1,000 patients (adults and children) with moderate to severe and end stage renal impairment, scheduled to undergo a routine contrast-enhanced MRI using gadoterate meglumine as contrast agent. For each patient, risk factors at inclusion, indications for MRI, and occurrence of adverse events are recorded and 3 follow up visits (between 3 months and 27 months after MRI) are performed in order to detect any suspicion or occurrence of NSF. If NSF is suspected a biopsy is performed for confirmation.

Results: As of August 27, 2014, the safety data of 426 patients (mean age: 70.2 years [range: 21-92]; male: 60.3%) were available for review. The mean eGFR was 36.9 ml/min/1.73m^2 (range: 4.0-74.2) and the population included 67.6% of moderate, 15.5% of severe, 14.1% of end stage renal insufficiency and 2.8% of kidney transplanted patients. Central nervous system imaging accounted for 31.7% of all examinations. To date, 226 patients attended the first follow-up visit (between 3 and 12 months after MRI), 129 patients attended the second follow-up visit (between 13 and 21 months after MRI) and 64 patients attended the third follow-up visit (between 22 and 27 months after MRI). No adverse event related to gadoterate meglumine was reported. Four serious adverse events were spontaneously reported in three patients (sepsis, bacterial meningitis, surgical complications and cardiac arrest). However, these events were not related to the administration of GBCAs. To date, no cases of NSF have been observed.

Discussion: GBCAs have recently been associated with the development of NSF. GBCAs should be used with caution in patients with impaired renal function and with end stage renal disease.

Conclusion: Interim analysis of the NSsaFe study showed no cases of NSF in patients with moderate to severe renal impairment. NSsaFe study confirms the excellent safety profile of gadoterate meglumine.

References:

[1]Grobner T. Gadolinium - a specific trigger for the development of nephrogenic fibrosing dermopathy and nephrogenic systemic fibrosis? Nephrol. Dial. Transplant. 2006; 21 (4): 1104-1108.

[2]Marckmann P, Skov L, Rossen K, et al. Nephrogenic systemic fibrosis: suspected causative role of gadodiamide used for contrast-enhanced magnetic resonance imaging. J. Am. Soc. Nephrol. 2006 ; 17 (9): 2359–2362