HAZARDS OF IMAGING

Contrast media

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There has been a dramatic increase in the use of contrast agents in recent years, mainly related to the increasing use of CT . Potential problems include allergic reaction and nephrotoxic ity . Reactions are rare: serious reactions occur in about 1:2500 cases and life-threatening reactions in fewer than 1:100 /uni00A0 000 cases. The risk of sudden death, however, has not changed with the new agents. Local policies for dealing with pa tients at increased risk vary between departments and, indeed, between countries. Premedication with steroids given at least 6 hours before the contrast can reduce the incidence and severity of anaphylactoid reactions but there is no evidence it reduces the risk of death. Low-osmolality contrast media (LOCMs) or iso-osmolar media are up to 10 times safer than the older ionic media. Most serious reactions occur shortly after injection, so observation of the patient for 30 minutes after injection with the intravenous cannula still in situ is recommended for higher risk individuals. In patients with diabetes or renal impairment, a recent creatinine level should be available. The risks of contrast- induced acute kidney injury are highest in patients with severe r enal impairment (estimated glomerular filtration rate [eGFR] 2 <30 /uni00A0 mL/min/1.73 /uni00A0 m), whereas in patients with normal renal 2 function (eGFR >60 /uni00A0 mL/min/1.73 /uni00A0 m) or even moderately impaired stable renal function (eGFR 45 /uni00A0 mL/min/1.73 /uni00A0 the risk is zero to minimal. Contrast should never be withheld if the benefits to the patient of making the diagnosis are felt to be justified by the referring surgeon and radiologist. But in patients with severe renal impairment the risks and benefits of contrast adminis tration need to be carefully assessed and, if contrast is given, the patient should be well hydrated and the lowest dose of an LOCM should be given. The evidence for the use of N -acetyl cysteine or sodium bicarbonate for renal protection is mixed, and their use is not recommended. patients taking metformin. Latest recommendations ar e that it appears safe to continue the metformin if the eGFR is above 2 for intravenous administration or above 30 /uni00A0 mL/min/1.73 /uni00A0 m 2 45 /uni00A0 mL/min/1.73m for intra-arterial injections. Any decision to stop metformin should be made with the radiologist and the physician managing the patient’s diabetes. Gadolinium-containing contrast agents are used in MRI examinations. Allergic reactions to these agents are very rare, occurring in less than 0.1% of administra tions. However, they can be nephrotoxic in patients with renal failure. In addition, they are associated with a risk of nephrogenic systemic fibrosis (NSF), an extremely rare but serious life-threatening condi - tion whereby connective tissue forms in the skin causing it to become coarse and hard. NSF may also a ff ect other organs, including joints, muscle, liver and heart. High-risk g adolinium- containing contrast agents are contraindicated in severe renal failure, in neonates and in the perioperative period of liver transplantation, and are not recommended in pregnancy . However, lower risk gadolinium preparations are available that may be used with caution. Liver-specific contrast agents for MRI, selectively taken up by hepatocytes, are increasingly used to characterise liver lesions and in

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