Ozone Contrast Media in Digital Renal Angiography

First Report in the Literature

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Dear Sir,

Digital subtraction angiography DSA offers a possibility to obtain high-quality vascular images by intra-arterial administration of iodine contrast media (CM) [1], but severe reactions have been provoked in patients with iodine allergy [2]. Some authors used CO₂-like negative-CM examinations by DSA in patients with iodine allergy record, but CO₂ has important side effects [3].

A lot of experiences using intra-arterial ozone (O₃) as a therapeutic agent in patients with vascular diseases have been reported. We introduced the O₃ as a negative CM in DSA. Ten male rats weighing 284–406 g formed our experimental group. A polyethylene microcatheter was inserted into the aorta at the level of the kidneys, and O₃ was injected. Studies on renal function were performed 4 h before and after the O₃ injection, and afterwards the animals were sacrificed. Light and electron microscopy showed no alterations, so it was assumed that there are no changes in the clinicochemical parameters of renal function and no damage to aorta and kidneys.

We experimented with dogs (double-blind studies, crossover design) using the abdominal aorta as target area. A comparison of the subjective picture quality by two different observers led to the conclusion that there is no difference between iodine and O₃ as CM.

Later on DSA examinations with O₃ as CM were performed in patients with renovascular hypertension and in patients with renal tumors who had a severe iodine allergy.

Good-quality images with no damage to the renal function or complications were obtained.

Some advantages of intra-arterial DSA with O₃ as CM are evident: (1) reduced risk in patients with iodine allergy, renal failure, and heart and liver diseases; (2) decreased occurrence of side effects; (3) lower cost, and (4) therapeutic effects.

References

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