

Low Molecular Weight Dextran: An Alternative to Radiographic Contrast Agent for OCT Imaging

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Optical coherence tomography (OCT) requires a radiographic contrast agent to replace the blood during intravascular imaging. Increased use of contrast volume during OCT imaging may further worsen the renal functions in patients who are at high risk for contrast-induced nephropathy (CIN). Low molecular weight dextran-40 can be an alternative to contrast agent during OCT imaging. Dextran-40 is a sterile, nonpyrogenic preparation of low molecular weight dextran (40,000 molecular weight - 10 gm%) in 5% dextrose or 0.9% sodium chloride injection.

We compared the image quality of iohexol 350 mg I/ mL radiographic contrast agent (GE Healthcare, Princeton, NJ) with dextran in 5 patients of percutaneous coronary intervention (PCI). During frequency domain OCT imaging with 2.7 French C7 Dragonfly TM imaging catheter (St Jude, Minneapolis, MN), contrast and dextran was given in succession to acquire intravascular imaging.

The image quality of normal coronary segment, plaque morphology like calcified, lipid rich plaque, fibrous plaque (Fig. 1) and thrombus, thrombus protrusion through stent struts, post-stenting struts apposition, side branch visualization and plaque protrusion (Fig. 2) was comparable and of good quality in both the arms. There was no complication of intracoronary dextran injection in any of the patients. We are now routinely using dextran as an alternative to contrast agent for OCT imaging in high risk patients for CIN.

A small amount of dextran used during OCT imaging does not have any deleterious hemodynamic, hematological or nephrotoxic effects. Anaphylactic

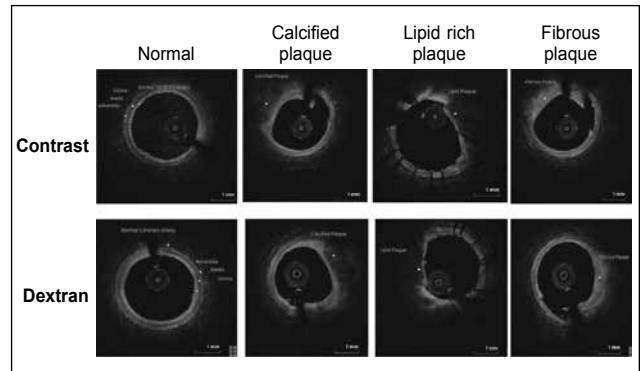


Figure 1. Image quality of normal coronary segment, plaque morphology like calcified, lipid rich plaque, fibrous plaque with both contrast and dextran were of good quality.

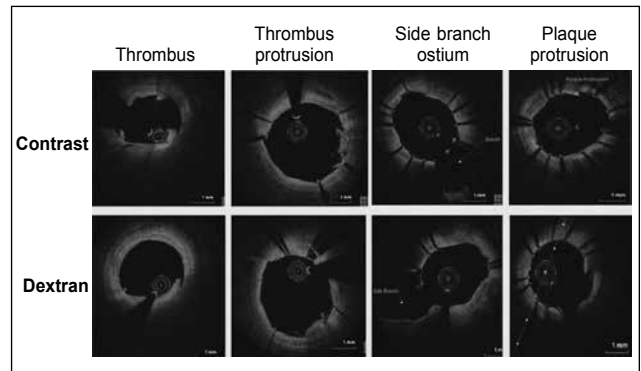


Figure 2. Image quality of thrombus, thrombus protrusion through stent struts, post-stenting struts apposition, side branch visualization and plaque protrusion with both contrast and dextran was comparable and of good quality.

reaction can be a serious side effect as it is a synthetic colloid produced from a bacterium.

Dextran can be used as an alternative to contrast agent in certain high risk patients of CIN.

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