

HEALTH RESEARCH ABSTRACT SUBMISSIONS

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Educational Level *	Other
If Selected Other	M2 (MD/PhD)
College *	College of Medicine
Department *	Medical Scientist Training Program & Department of Biomedical Engineering
Title of Research *	Iodinated, liposomal blood pool contrast agent for CT-angiography of thoracic and peripheral run-off vasculature - an animal feasibility study
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Introduction & Purpose *	<p>Contrast-enhanced CT angiography (CTA) has become an invaluable tool for clinical assessment of chest pain in emergency room setting. Attempts have focused on "triple rule-out" approach to evaluate the most critical conditions: pulmonary thromboembolism (PE), coronary artery obstruction and aortic dissection. These attempts have been hindered by the need for repeated nephrotoxic contrast agent administration necessary to achieve optimal vasculature opacification, and by repeated use of X-ray dosing to obtain imaging within the correct time interval.</p> <p>Novel liposomal contrast agents are being developed to reconcile the need for contrast administration and the speed of imaging. Their main advantages include extended residence time in circulation, allowing a greater interval of time for imaging, and hepatic excretion, minimizing nephrotoxicity issues.</p> <p>We sought to determine whether clinically acceptable blood opacification using a novel liposomal-iodine contrast agent, NCTX, could be attained for simultaneous visualization of the cardiac and pulmonary vasculature in a large animal model.</p>
Experimental Design *	<p>One sheep and six pigs were assigned to one of two groups:</p> <p>Group A (n = 4): autologous blood clots were injected in the pulmonary arteries of animals to simulate PE. Initial PE imaging was achieved using conventional contrast agent, Iohexol. After Iohexol washout, whole-body CTA was performed using NCTX.</p> <p>Group B (n = 4): NCTX-enhanced, ECG-gated, coronary CTA was performed for evaluation of coronary arteries.</p>
Results *	<p>Excellent visualization and uniform opacification of the entire cardiovascular system was demonstrated for up to 120 minutes post-infusion of NCTX. The absence of bladder enhancement confirmed the non-renal excretion of this contrast agent. Imaging with NCTX demonstrated the majority of PE detected with Iohexol for up to 120 minutes after contrast injection.</p>
Conclusions *	Based on results of this study, clinical use of NCTX may permit "triple

rule-out" evaluation of pulmonary thromboembolism, coronary artery obstruction, and aortic dissection with a single contrast injection, and a single CT scan.

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