

Dynamic contrast-enhanced magnetic resonance imaging of prostate cancer: A review of current methods and applications

Mazaheri Y *et al.* Contrast-enhanced MRI of prostate cancer

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Abstract

In many areas of oncology, ¹⁷ dynamic contrast-enhanced magnetic resonance imaging (DCE-MRI) has proven to be a clinically useful, non-invasive functional imaging technique to quantify tumor vasculature and tumor perfusion characteristics. Tumor angiogenesis is an essential process for tumor growth, proliferation, and metastasis. Malignant lesions demonstrate rapid extravasation of contrast from the intravascular space to the capillary bed due to leaky capillaries associated with tumor neovascularity. DCE-MRI has the potential to provide information regarding blood flow, areas of hypoperfusion, and variations in endothelial permeability and microvessel density to aid treatment selection, enable frequent monitoring during treatment and assess response to targeted therapy following treatment. This review will discuss the current status of DCE-MRI in cancer imaging, with a focus on its use in imaging prostate malignancies as well as weaknesses that limit its widespread clinical use. The latest techniques for quantification of DCE-MRI parameters will be reviewed and compared.

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A Review of Imaging Methods for Prostate Cancer Detection

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广告 X

Dynamic contrast enhanced magnetic resonance imaging in oncology: theory, data acquisition, analysis, and examples

[TE Yankeelov](#), [JC Gore](#) - [Current medical imaging reviews](#), 2007 - [ingentaconnect.com](#)

Dynamic contrast enhanced MRI (DCE-MRI) enables the quantitative assessment of tumor status and has found application in both pre-clinical tumor models as well as clinical oncology. DCE-MRI requires the serial acquisition of images before and after the injection of a paramagnetic contrast agent so that the variation of MR signal intensity with time can be recorded for each image voxel. As the agent enters into a tissue, it changes the MR signal ...

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Dynamic contrast - enhanced magnetic resonance imaging (DCE - MRI) is a useful modality for the precise detection and staging of early prostate cancer

[N Hara](#), [M Okuizumi](#), [H Koike](#), [M Kawaguchi](#)... - [The Prostate](#), 2005 - [Wiley Online Library](#)

BACKGROUND The aim of this study was to visualize early stage prostate cancer (Cap) in a clinical setting. In previous studies, the results of magnetic resonance imaging (MRI) for screening Cap have rarely been confirmed by well-designed multisite prostate biopsy. METHODS The prostate glands of 90 men with elevated prostate-specific antigen (PSA) were imaged by dynamic contrast-enhanced MRI (DCE-MRI) before transrectal ultrasound ...


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2010年12月24日 - Dynamic contrast-enhanced MRI enables noninvasive analysis of prostate ... This review consists of two parts. ... of current and potential future clinical applications of DCE-MRI and pharmacokinetic parametric maps in patients with prostate cancer, with reference to the current scientific literature on the topic.

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Dynamic contrast-enhanced magnetic resonance imaging in prostate cancer: Kayhan ... Prostate cancer remains a major health concern for the male population. ... In this article, we are going to review the analysis techniques of dynamic contrast-enhanced MRI and its various clinical applications in prostate cancer patients.

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