

Name of Journal: *World Journal of Gastroenterology*

Manuscript NO: 57658

Manuscript Type: ORIGINAL ARTICLE

Retrospective Study

Dynamic Contrast-enhanced MR Imaging and Diffusion-weighted Imaging in the Activity Staging of Terminal Ileum Crohn's Disease

Yin-chen Wu *et al.* DCE-MRI and DWI of CD Activity

Abstract

BACKGROUND

The activity staging of Crohn's disease (CD) in the terminal ileum is critical in developing an accurate clinical treatment plan. The activity of terminal ileum CD is associated with the microcirculation of involved bowel walls. Dynamic contrast-enhanced MRI (DCE-MRI) and diffusion-weighted imaging (DWI) can reflect perfusion and permeability of bowel walls by providing microcirculation information. As such, we hypothesize that DCE-MRI and DWI parameters can assess terminal ileum CD, thereby providing an opportunity to stage CD activity.

AIM

To evaluate the value of DCE-MRI and DWI in assessing activity of terminal ileum CD.

Match Overview

1	Crossref 80 words Stefanie J. Hectors, Sonja Gordic, Sahar Semaan, Octavia Bane, Robert Hirten, Xiaoyu Jia, Jean-Frederic Colombel...	2%
2	Crossref 38 words Li Huang, Xue-hua Li, Si-yun Huang, Zhong-wei Zhang et al. "Diffusion kurtosis MRI versus conventional diffusion-we	1%
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Active Crohn's Disease in the small bowel: Evaluation by ...

<https://onlinelibrary.wiley.com/doi/full/10.1002/jmri.22435>

Diffusion-weighted imaging (DWI) and quantitative **dynamic contrast-enhanced** MRI (DCE-MRI) have been investigated recently in the assessment of **bowel** inflammation in CD (10-13). Initial results from studies evaluating both **small bowel** and colon appear promising despite their limitations such as **small** sample size or an imperfect reference ...

Cited by: 224

Author: AYTEKIN OTO, ARDA KAYHAN, JOSHUA T.B. ...

Publish Year: 2011

Diffusion-weighted MR Imaging of the Gastrointestinal ...

<https://pubs.rsna.org/doi/full/10.1148/rg.333125042>

May 03, 2013 · Active **Crohn's disease** in the **small bowel**: evaluation by **diffusion weighted imaging** and quantitative **dynamic contrast enhanced MR imaging**. *J Magn Reson Imaging* 2011 ;33(3):615-624. Crossref , Medline , Google Scholar

Cited by: 33

Author: RAKESH SINHA, PRABHAKAR RAJIAH, ISWARA...

Publish Year: 2013

New Imaging Techniques in the Diagnosis of Inflammatory ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608604>

Results. New **imaging** techniques such as **diffusion-weighted imaging**, **dynamic contrast-enhanced MR** perfusion, and **MR** motility **imaging** yield advanced findings about changes in the microenvironment and alterations in motility of the affected **bowel** segment, and are proven to improve the diagnostic accuracy in assessing the scale, **activity** level, and severity of the IBD.

Cited by: 13

Author: YAN LI, KARLHEINZ HAUSTEIN

Publish Year: 2015

Changes in dynamic contrast-enhanced pharmacokinetic and ...

<https://www.europepmc.org/articles/PMC4743468> ▾

Sep 24, 2015 · To investigate the effect of tumour necrosis factor (TNF)- α antagonists on MRI



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<https://www.ncbi.nlm.nih.gov/pubmed/24037299>

DCE-MRI and DWI parameters provide additional information. KEY POINTS: • Conventional **MR** enterography can be used to assess **Crohn's disease activity**. • Several **MRI** parameters correlate with inflammation and fibrosis scores from histopathology. • **Dynamic contrast enhanced imaging and diffusion weighted imaging** give additional information.

Cited by: 155

Author: Jeroen A. W. Tielbeek, Manon L. W. Ziech, ...

Publish Year: 2014

[\(PDF\) Evaluation of Dynamic Contrast Enhanced and ...](#)

<https://www.researchgate.net/publication/266096187...>

To prospectively compare conventional **MRI** sequences, **dynamic contrast enhanced (DCE) MRI and diffusion weighted imaging (DWI)** with histopathology of surgical specimens in **Crohn's disease**. 3-T MR

...

[Assessment of Activity of Crohn Disease by Diffusion ...](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985398>

To assess the diagnostic efficacy of **diffusion-weighted MR imaging (DWI)** for evaluating inflammatory **activity** in patients with **Crohn's disease (CD)**. A total of 47 CD patients underwent **MR** enterography (MRE) and DWI using 3 b values of 50, 400, and 800 s/mm. 2 Apparent diffusion coefficients (ADCs) of inflamed and normal bowel wall were calculated.

Cited by: 17

Author: Xue-hua Li, Can-hui Sun, Ren Mao, Zhong-w...

Publish Year: 2015

[Changes in dynamic contrast enhanced pharmacokinetic and](#)



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[Evaluation of conventional, dynamic contrast enhanced and ...](#)

<https://www.ncbi.nlm.nih.gov/pubmed/24037299>

OBJECTIVES: To prospectively compare conventional MRI sequences, **dynamic contrast enhanced** (DCE) MRI and **diffusion weighted imaging** (DWI) with histopathology of surgical specimens in **Crohn's disease**. METHODS: 3-T MR enterography was performed in consecutive **Crohn's disease** patients scheduled for surgery within 4 weeks.

Cited by: 155 **Author:** Jeroen A. W. Tielbeek, Manon L. W. Ziec...

Publish Year: 2014

[Magnetic resonance enterography in Crohn's disease ...](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2999318>

Apr 28, 2010 · Del Vescovo R, Sansoni I, Caviglia R, Ribolsi M, Perrone G, Leoncini E, Grasso RF, Cicala M, Zobel BB. **Dynamic contrast enhanced magnetic resonance imaging** of the **terminal ileum**: differentiation of **activity** of **Crohn's disease**. *Abdom Imaging*. 2008; 33:417–424.

Cited by: 20 **Author:** Arda Kayhan, Jacob Oommen, Farid Dah...

Publish Year: 2010

[Diffusion-weighted magnetic resonance imaging for ...](#)

<https://onlinelibrary.wiley.com/doi/full/10.1111/apt.12201>

Introduction. **Crohn's disease** (CD) is a chronic relapsing and destructive disorder that can involve the entire length of the digestive tract. 1 While colonoscopy is considered as the gold standard for assessing colonic inflammatory **activity**, small bowel investigation requires **magnetic resonance imaging** (MRI) or computed tomography (CT-scan) to detect involvement. 2 Wireless capsule endoscopy ...

Cited by: 184 **Author:** A. Buisson, A. Joubert, P.-F. Montoriol, D. ...

Publish Year: 2013

[Assessment of Activity of Crohn Disease by Diffusion ...](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985398>

Reduced diffusion has been reported in inflamed bowel segments with active CD. **Diffusion-weighted imaging** was superior to **contrast-enhanced magnetic resonance imaging** (MRI) for detection of bowel inflammation. 5,8–10 The purpose of this study was to assess the efficacy of DWI for evaluating **activity** ...

...

Cited by: 17 **Author:** Xue-hua Li, Can-hui Sun, Ren Mao, Zhon...