Quantitative evaluation of fatty liver using spectroscopic sequence – correlation between Magnetic Resonance Spectroscopy and histopathology

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Background: Hepatic steatosis results in the accumulation of lipids within hepatocytes. Computed Tomography (CT) and Ultrasound (US) can qualitatively assess liver fat. The most accurate imaging technique in terms of quantifying hepatic steatosis is Magnetic Resonance Spectroscopy (MRS). The study aimed to validate the role of 3T MRS in quantitative assessment of liver steatosis.
Material and methods: The liver of 33 patients was qualitatively assessed through lab and ultrasound tests. All patients were investigated with a 3T high resolution MRI consisting of T1 weighted sequences with in-phase, out-of-phase and fat specific phases and also T2 weighted and spectroscopy sequences. The qualitative assessment was carried out using the fat fraction calculated manually after spectroscopy computer analysis. The steatosis was graded as grade 0 = up to 10%, grade 1 = 10-33%, grade 2 = 34-66%, grade 3 = ≥ 67%. Liver biopsy was performed in patients who underwent surgery for different pathologies.
Results: Limited by a small number of patients and surgical invasiveness of liver biopsy, the study shows that five patients had grade 0 steatosis, thirteen had grade 1, six patients – grade 2 and one patient – grade 3, offering a good correlation between MRS and histopathology.
Conclusions: Despite being a pilot study, we can conclude that MRS is an effective noninvasive technique that can be extremely useful in diagnosing and quantifying hepatic steatosis.
Key words: magnetic resonance spectroscopy, liver steatosis.

Le rôle de l'angioscanner coronaire dans l'évaluation de la maladie coronarienne

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Introduction: Le scanner cardiaque est couramment pratiqué pour acquérir des connaissances sur l'anatomie cardiaque ou coronaire, pour détecter ou diagnostiquer une coronaropathie, pour évaluer la perméabilité des pontages coronaires ou des stents coronaires implantés ou pour évaluer la fonction volumétrique et cardiaque (y compris la fraction d'éjection).
Contenu: La présentation discute des possibilités du scanner cardiaque dans le diagnostic de la maladie coronarienne, y compris l'évaluation de la perméabilité du pontage coronarien et le diagnostic de la resténose intra-stent. La littérature disponible sur l'angiographie coronarienne sera examinée et plusieurs cas seront utilisés comme exemples pour illustrer l'approche d'imagerie de la coronaropathie, de l'anatomie cardiaque et coronaire. Des questions / réponses interactives avec le public seront utilisées pour évaluer la bonne exécution des objectifs. En particulier, le public sera invité à donner son opinion sur plusieurs cas et les réponses seront discutées pendant la conférence.
Conclusions: Les participants seront familiers avec les indications, les possibilités et les limites de l'angioscanner coronaire.
Mots-clés: la maladie coronarienne, la tomodensitométrie, l'angioscanner coronaire.

The role of CT coronary angiography in the evaluation of coronary artery disease

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Background*:* Cardiac CT is routinely performed to gain knowledge about cardiac or coronary anatomy, to detect or diagnose coronary artery disease, to evaluate patency of coronary artery bypass grafts or implanted coronary stents or to evaluate volumetry and cardiac function (including ejection fraction).
Content*:* The presentation discusses the possibilities of cardiac CT in diagnosis of coronary artery disease, including the evaluation of coronary bypass graft patency and the diagnosis of in-stent restenosis. Available literature on coronary angiography CT will be reviewed and several cases will be used as examples to illustrate the imaging approach to coronary artery disease, cardiac and coronary anatomy. Interactive questions/answers with audience will be used to assess the proper delivery of the objectives. In particular the audience will be asked an opinion on multiple cases and the answers will be discussed during the lecture.
Conclusions*:* Attendees will be familiar with indications, possibilities and limitations of CT coronary angiography.
Key words: coronary artery disease, computed tomography, CT coronary angiography.