

Magnetic resonance spectroscopy to unravel metabolic alterations in hepatic steatosis in humans

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PROPOSITIONS

Belonging to the PhD thesis

Magnetic resonance spectroscopy to unravel metabolic alterations in hepatic steatosis in humans

(Pandichelvam Veeraiah)

1. The absolute estimation of intrahepatic lipid (IHL) content requires accurate T_2 correction of the water and lipid MR signals based on the level of steatosis and type of MRS sequence used - *This thesis*.
2. The possibility to determine specifically the saturated fatty acid fraction is important as it may hamper hepatic insulin sensitivity - *This thesis*.
3. Next to the alterations in total IHL and composition, low hepatic choline status is one of the metabolic abnormalities associated with hepatic steatosis in obese volunteers - *This thesis*.
4. Innovation in MRS sequences for indirect ^{13}C -MRS is instrumental to investigate the various determinants of lipid partitioning into the human liver - *This thesis*.
5. Pharmaceutical and food industries can benefit from the development of MRS protocols towards targeting metabolic pathways in the liver for treatment of hepatic steatosis - *Impact of this thesis*.
6. The composition of hepatic fat reveals new mechanistic insights about its origin and pathways leading to fat accumulation in the liver - *Luukkonen P.K. et al. Diabetes Care 2018*.
7. T_2 correction for composite lipid signals can be problematic by assuming a constant monoexponential T_2 decay for all lipid peaks as some of the lipid resonances show j-evolution - *Hamilton G. et al. J Magn Reson Imaging 2009*.
8. Localized indirect ^{13}C -MRS is very promising for the longitudinal assessment of *in vivo* lipid partitioning between multiple tissues in rats - *Jonkers R.A.M. et al. Magn Reson Med 2012*.
9. Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid - *Prof. Albert Einstein*.
10. You have to dream before your dreams can come true - *Dr. A.P.J. Abdul Kalam*.