

CLAHRCBITE

Brokering innovation through evidence

Causality between Non-alcoholic Fatty Liver Disease (NAFLD) & Cardiovascular Disease (CVD) & Type 2 diabetes (T2DM)



Results

Patients with NAFLD were at a 1.5 times increased risk of developing CVD and 2.2 times increased risk of T2DM.

Who needs to know?

Patients, Hepatologists and Pharmaceutical companies- therapeutic strategies targeting NAFLD are likely to reduce this risk of developing T2DM.

What did we do:

Literature review of studies investigating longitudinal associations of NAFLD with CVD or T2DM. Study-specific relative risks (RRs) were combined in random-effects meta-analyses and pooled estimates used in bias analyses. Bias analysis was used, for an unmeasured confounder associated to both NAFLD and CVD, to identify the proportion of studies with a true (causal) effect of NAFLD on the development of CVD or T2DM.

What we found and what does this mean:

Associations of NAFLD with CVD and T2DM were reported in 13 (258 743/18 383 participants/events) and 20 (240 251/12 891) studies respectively. Comparing patients with NAFLD to those without, the pooled RR was 1.48 for CVD and 2.17 for T2DM. The results are strongly suggestive for a causal relationship between NAFLD and T2DM, while the evidence for a causal link between NAFLD and CVD is less robust.

What next:

Currently there are no specific pharmacological interventions for NAFLD, its treatment relies on the optimisation of associated metabolic risk factors. Extensive research is on-going, with more than 30 potential therapies under investigation in 200 RCTs. Our findings would suggest that future pharmacological treatments able to reduce the risk of NAFLD or to limit its progression, would also likely reduce the risk of developing T2DM.

Evidence:

Morrison AE, Zaccardi F, Khunti K, Davies MJ. Causality between non-alcoholic fatty liver disease and risk of cardiovascular disease and type 2 diabetes: A meta-analysis with bias analysis. *Liver Int.* 2018. <http://dx.doi.org/10.1111/liv.139>

What is NIHR CLAHRC EM?

NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) are collaborations between the NHS, universities and local organisations. Our goals are to conduct applied health research across the East Midlands and translate our research findings into improved outcomes for the public.

 @clahrc_em  www.clahrc-em.nihr.ac.uk  clahrc-em@leicester.ac.uk

This research is funded by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care East Midlands (CLAHRC EM).