**Supplementary Table 1 Summary of major clinical trials of antihyperglycemic medications in patients with chronic liver diseases**

| Dose | Duration | Population | DM | Cirrhosis | Conclusions | Ref. |
|---|---|---|---|---|---|---|
| ***Metformin*** | | | | | | |
| 2 g/d | 12 mo | Biopsy-proven NAFLD | DM and non-DM | Non-cirrhotic | Transient improvement in liver chemistries compared to baseline | Nair *et al*, 2004 |
| 1700 mg/d | 6 mo | Clinical NASH | Non-DM | - | No differences in necro-inflammatory activity or fibrosis | Uygun *et al*, 2004 |
| 2 g/d | 12 mo | Biopsy-proven NAFLD | Non-DM | - | Higher rates of aminotransferase normalization compared to placebo | Buginanesi *et al*, 2005 |
| 2500-3000 mg/d | 6 mo | Biopsy-proven NAFLD | DM and non-DM | Non-cirrhotic | No improvement in liver histology | Haukeland *et al*, 2009 |
| 2 g/d | 48 wk | Biopsy-proven NASH | DM and non-DM | 25/26 were non-cirrhotic | Improvement in liver histology and ALT levels compared to baseline | Loomba *et al*, 2009 |
| 500-1000 mg/d | 12 mo | Biopsy-proven NASH | Non-DM | - | No improvement in liver function tests or liver histology | Shields *et al*, 2009 |
| 1700 mg/d | 12 mo | Biopsy-proven NAFLD | DM or IGT | - | No improvement in liver function tests or liver histology | Omer *et al*, 2010 |
| ***Pioglitazone*** | | | | | | |
| 30 mg/d | 48 wk | Biopsy-proven NASH | Non-DM | Non-cirrhotic | Improvement in biochemical and histological features of NASH compared to baseline | Promrat *et al*, 2004 |
| 45 mg/d | 6 mo | Biopsy-proven | DM or IGT | Non-cirrhotic | Greater reduction in | Belfort *et al*, |

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|---|---|---|---|---|---|---|
| | | NASH | | | aminotransferase levels, steatosis, balloon necrosis, and inflammation compared to placebo | 2006 |
| 30 mg/d | 96 wk | Biopsy-proven NASH | Non-DM | Non-cirrhotic | Greater reduction in aminotransferase levels, steatosis, and inflammation compared to placebo | Sanyal *et al*, 2010 |
| 30 mg/d | 12 mo | Biopsy-proven NASH | Non-DM | 30/31 were non-cirrhotic | Greater reduction in aminotransferase levels, histological features of liver injury, fibrosis compared to placebo | Aithal *et al*, 2008 |
| 45 mg/d | 36 mo | Biopsy-proven NASH | DM or IGT | 43/50 were non-cirrhotic | Persistent metabolic and histologic improvement compared to placebo | Cusi *et al*, 2016 |
| 45 mg/d | 18 mo | Biopsy-proven NASH | DM or IGT | - | Greater reduction in liver fibrosis and insulin sensitivity in DM group compared to IGT group | Bril *et al*, 2018 |
| 45 mg/d | 48 wk | Biopsy-proven hepatic steatosis with HIV/HCV-coinfection | Non-DM | Non-cirrhotic | Reduction in hepatic steatosis compared to baseline | Matthews *et al*, 2015 |
| ***Acarbose*** | | | | | | |
| 300 mg/d | 28 wk | Biopsy-proven | DM | Compensated | Reduction in fasting, | Gentile *et al*, |

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|---|---|---|---|---|---|---|
| | | cirrhosis | | Cirrhotic | postprandial, and mean glycemia compared to baseline | 2001 |
| 300 mg/d | 8 wk | Biopsy-proven cirrhosis | DM | Cirrhotic with low-grade encephalopathy | Greater reduction in ammonia level and improvement in intellectual function compared to placebo | Gentile *et al*, 2005 |
| ***Miglitol*** | | | | | | |
| 150 mg/d | 48 wk | Biopsy-proven NASH | DM or IGT | Non-cirrhotic | Improvement in steatosis and lobular inflammation | Komatsu *et al*, 2018 |
| ***Liraglutide*** | | | | | | |
| 0.9 mg/d | 96 wk | Biopsy-proven NASH | DM | 9/10 were non-cirrhotic | Improvement in liver function and histological features compared to baseline | Eguchi *et al*, 2015 |
| 1.8 mg/d | 48 wk | Biopsy-proven NASH | DM and non-DM | 24/26 were non-cirrhotic | Higher rate of histological resolution of NASH with no worsening in fibrosis compared to placebo | Armstrong *et al*, 2016 |
| 1.8 mg/d | 24 wk | Hepatic steatosis on imaging | DM | - | Improved liver function and reduced intrahepatic fat compared to baseline | Feng *et al*, 2017 |
| 1.8 mg/d | 26 wk | Hepatic steatosis on imaging | DM | - | Reduction in intrahepatic lipid content compared to baseline | Yan *et al*, 2019 |
| ***Exenatide*** | | | | | | |
| 20 mcg/d | 26 wk | Hepatic steatosis on imaging | DM | - | Greater reduction in hepatic triglyceride | Dutour *et al*, 2016 |

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|---|---|---|---|---|---|---|
| | | | | | content compared to placebo | |
| ***Vildagliptin*** | | | | | | |
| 100 mg/d | 6 mo | - | DM | - | Greater reduction in hepatic triglyceride levels compared to placebo | Macaule y *et al*, 2015 |
| ***Sitagliptin*** | | | | | | |
| 100 mg/d | 24 wk | Hepatic steatosis on imaging | DM or IGT | - | No better than placebo in reducing liver fat | Cui *et al*, 2016 |
| 50-100 mg/d | 52 wk | Hepatic steatosis on imaging | DM | - | No changes in aminotransferase levels | Deng *et al*, 2017 |
| 100 mg/d | 52 wk | Biopsy-proven NASH | DM and non-DM | Non-cirrhotic | Reduction in hepatic steatosis and ballooning compared to baseline | Alam *et al*, 2018 |
| 100 mg/d | 26 wk | Hepatic steatosis on imaging | DM | - | Reduction in intrahepatic lipid content compared to baseline | Yan *et al*, 2019 |
| ***Canagliflozin*** | | | | | | |
| 300 mg/d | 24 wk | Most have clinical NAFLD | DM | - | Greater reduction in intrahepatic triglyceride compared to placebo | Cusi *et al*, 2018 |
| ***Dapagliflozin*** | | | | | | |
| 10 mg/d | 24 wk | Hepatic steatosis on imaging | DM | - | Reduction in placebo-corrected total body weight and total body fat mass compared to baseline | Bolinder *et al*, 2012 |
| 10 mg/d | 12 wk | Hepatic steatosis on imaging | DM | - | Reduction in liver fat content and biomarkers of hepatocyte injury compared to baseline | Eriksson *et al*, 2018 |

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|---|---|---|---|---|---|---|
| 5 mg/d | 24 wk | Clinical NAFLD | DM | 19/33 had no significant fibrosis | Reduction in hepatic steatosis, liver stiffness, and aminotransferase levels compared to baseline | Shimizu *et al*, 2018 |
| ***Empagliflozin*** | | | | | | |
| 10 mg/d | 20 wk | Hepatic steatosis on imaging | DM | Non-cirrhotic | Greater reduction in liver fat content and ALT level compared to placebo | Kuchay *et al*, 2018 |
| 25 mg/d | 24 wk | 33/42 had hepatic steatosis on imaging | DM | - | Greater reduction in liver fat content compared to placebo | Kahl *et al*, 2020 |
| ***Ipragliflozin*** | | | | | | |
| 50 mg/d | 24 wk | Clinical NAFLD | DM | - | Reduction in hepatic steatosis, aminotransferase levels, and body weight compared to baseline | Ito *et al*, 2017 |