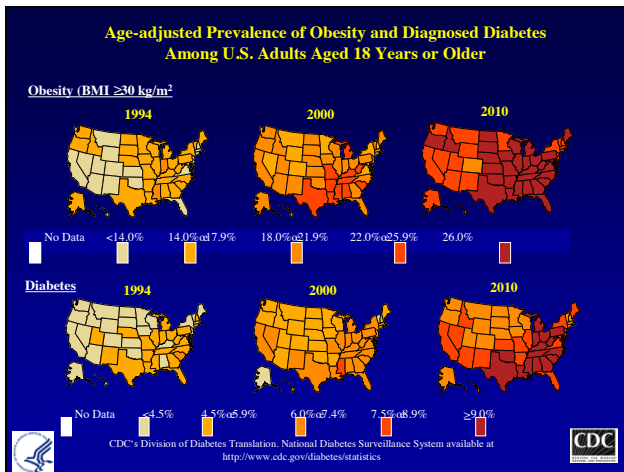


NUTRITION AND METABOLIC SYNDROME: CARDIOVASCULAR AND HEPATIC DAMAGES

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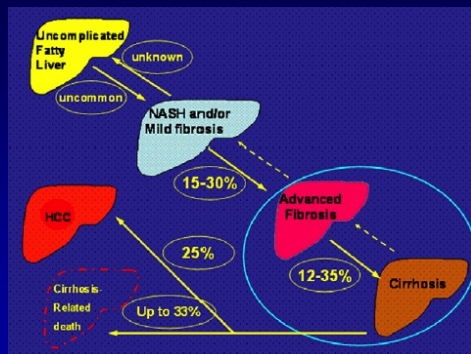
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Nonalcoholic fatty liver disease (NAFLD)

- Nonalcoholic fatty liver disease (NAFLD) is the most common chronic liver disease in Western countries
- NAFLD refers to a spectrum of liver damage ranging from simple steatosis to nonalcoholic steatohepatitis (NASH), advanced fibrosis and cirrhosis, which can evolve to hepatocellular carcinoma (HCC).
- Insulin resistance (IR) is the pathophysiological hallmark of NAFLD and plays a key role in the pathogenesis and severity of liver damage

Natural history of NAFLD



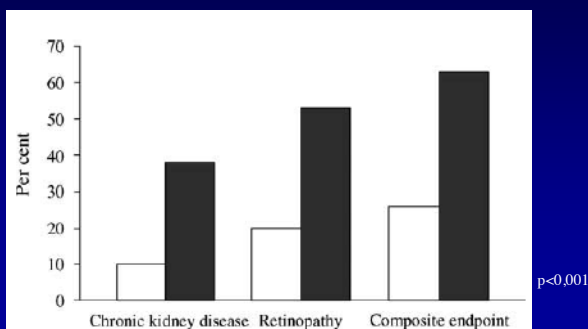
Guidelines AISF Dig Liv Dis 2010

Decreased survival of patients with NAFLD during a 28-year follow-up

Patients with NAFLD are at increased risk of death compared with the Swedish general population, exhibiting a 69% increased mortality (55% if bland steatosis, 86% if NASH) once adjusted for age and sex. Cardiovascular diseases is the first, extrahepatic malignancy the second and liver death is the third cause of death

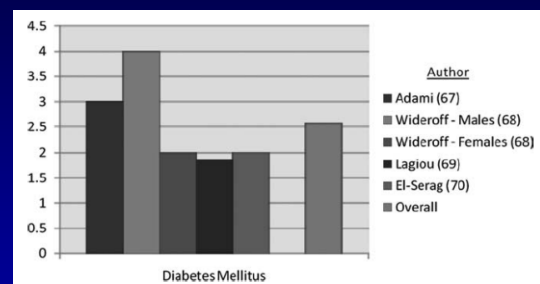
Soderberg, Hepatology 2010

Prevalence of chronic kidney disease, retinopathy or both in type 1 diabetic adults with (black) and without (white) NAFLD



Targher, Diabetologica 2010

Relative risk of HCC in diabetes



Starley, Hepatology 2010

NAFLD and diabetes: effect on liver disease

- Prevalence of diabetes in NAFLD patients 17-45%

Younossi, Clin Gastroenterol Hepatol 2004, Weston, Hepatology 2005

- Presence of diabetes in NAFLD increases the risk of developing aggressive outcome, such as NASH, cirrhosis and mortality

Angulo, Hepatology 2007, Fracanzani, Hepatology 2008, Hossain Clin Gastroenterol Hepatol 2009

- Diabetic patients with NAFLD are at increased risk of death for liver disease and malignancy

Adams, Am J Gastroenterol 2010

Lifestyle changes

- Lifestyle changes are the basic approach to the treatment of the metabolic syndrome and have been advocated as the solution of obesity, type 2 diabetes and hypertension
- Nutritional counselling, weight reduction, physical activity, and smoking cessation are the key points of lifestyle changes
- Cognitive behavioural therapy may be necessary

Eckel, Lancet 2005

Reduction in type 2 diabetes in 3234 subjects with elevated fasting and post load glucose

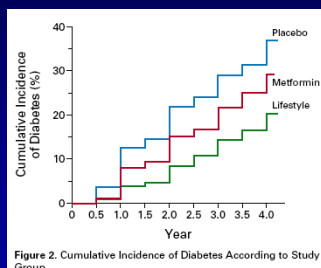


Figure 2. Cumulative Incidence of Diabetes According to Study Group.

Diabetes Prevention Group, N Engl J Med, 2002

Conclusions

- NAFLD, the hepatic manifestation of the metabolic syndrome, plays a key role in the natural history of subjects with a non appropriate nutrition
- Survival in patients with NAFLD is reduced for cardiovascular diseases, and malignancy more than for hepatic complications
- A correct diet and physical exercise play a key role in the prevention and therapy of NAFLD and related complications