Liver Transplantation and nuances with Bariatric Surgery

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DISCLOSURES

Proctor- Intuitive
Consultant- Medtronic
Speaker- Conmed.

Fatty Liver Disease Spectrum

- NAFLD

Hepatic steatosis without significant inflammation.

No secondary causes of hepatic steatosis

20- 33% of people with NAFLD progress to NASH.

- NASH

Hepatic steatosis with evidence of inflammation. (Hepatocyte Ballooning degeneration and Hepatic Lobular Inflammation)

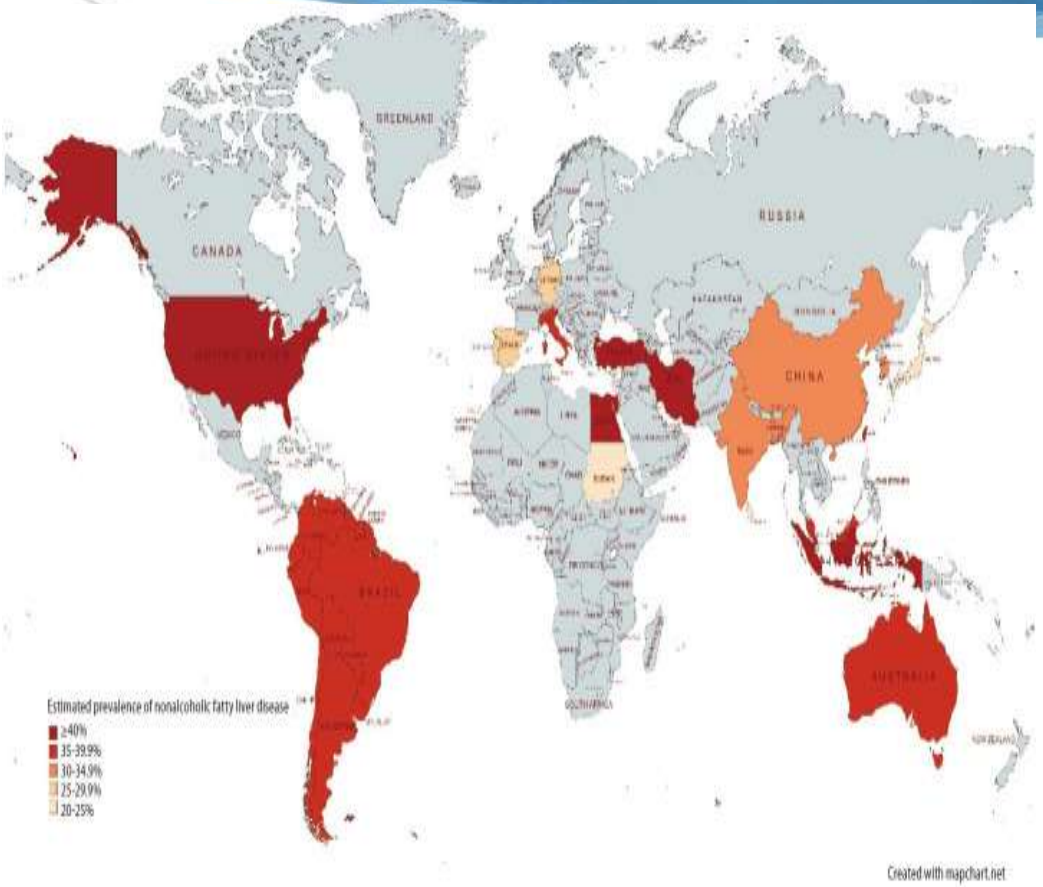
Histologically indistinguishable from alcoholic steatohepatitis.

Fastest growing cause of HCC

Fastest growing indication for LT in USA.

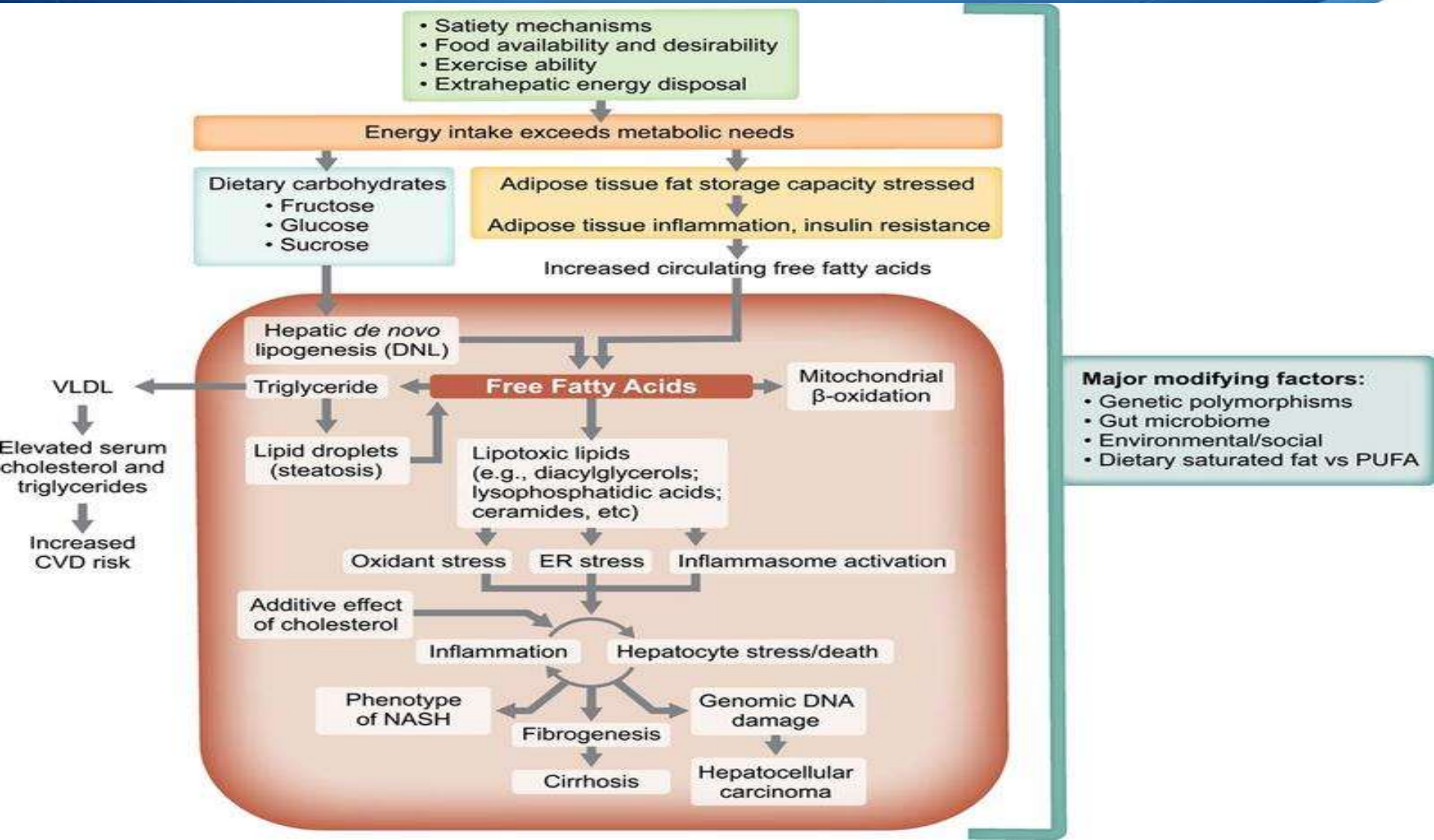
33% of NASH pts progress to Cirrhosis.

NAFLD-Scope of problem



- NAFLD- Global Incidence- 32%
- NAFLD- Americas, South East Asia- 40%
- NASH- 5% of US population.

Progression of NASH and NAFLD



Need for MBS

- High prevalence of Obesity in LT Cohort.
- BMI>40 Cutoff in most programs.
- LT Technically Challenging in Obese patients.
- Immunosuppressive medications Obesogenic
- Immunosuppressive medications are Diabetogenic, DM independent risk factor for graft survival.
- Obese LT patients are high risk for Metabolic syndrome and risk of CVA events increased.
- Recurrence of NASH after transplant is 30-100%

Choice of Procedure

- Sleeve

Technically least challenging.

Easiest to maintain Immunosuppression Levels.

Access to Biliary Tract maintained.

- Bypass/SADI/DS

Technically more challenging.

Variable absorption of Immunosuppression

Access to Biliary tract challenging.

MBS before LT Assesment

- Child Turcotte- Pugh Score

  Mortality A-10%, B-30%,C-80%

  Ascites, Encephalopathy – Subjective.

- MELD Score more objective.

  Mortality increases 1 percent for every point increase below 20 and 2% for pont increase above 20

  MELD above 8%- poor outcome.

Portal Hypertension

- Thrombocytopenia and Splenomegaly
- Ascites- wound healing.
- Ascites- Pulmonary atelectasis.
- Varices, Shunts.
- Periop fluid shifts
- Hepatic venous wedge pressure >10- Significant Portal Hypertension.
- Risk of TIPS should be weighed.

MBS before LT- Disadvantages

- High risk of bleeding.
- Can cause progression to Decompensated Cirrhosis, liver failure.
- If patient leaks may prevent patient from qualifying for LT
- If patient leaks may make Future LT technically difficult due to adhesions.

MBS before LT- Advantages

- Makes LT less challenging due to body habitus change.
- May cause patient to be Delisted due to improvement in Liver disease.
- May improve chances of getting listed due to decrease in BMI

Original article

Outcomes of bariatric surgery in patients with obesity and compensated liver cirrhosis

Elias Khajeh, M.D., M.P.H., Ehsan Aminizadeh, M.D., M.P.H., Pegah Eslami, M.D., Ali Ramouz, M.D., Yakup Kulu, M.D., Adrian T. Billeter, M.D., Felix Nickel, M.D., Beat Peter Müller-Stich, M.D., Arianeb Mehrabi, F.I.C.S., F.E.B.S., F.A.C.S*

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- Overall Complication rate Higher in Cirrhotic group. 13.6% vs 6.3%
- Hospital LOS higher in cirrhotic group.
- Significantly higher 90 day postop mortality in cirrhotic group. (probably from progression of disease rather than bariatric Surgery)
- Long term mortality equivalent between two groups.
- Total weight loss between two groups at 12 months equivalent.

MBS During LT- Advantages

- One operation, one hospital stay.
- Resolution of Portal Hypertension
- No adhesions.
- Insurance coverage or delays in approval for MBS
- Graft has best chance of avoiding De Novo steatosis.

MBS During LT- Disadvantages

- Complication from BS can have severe consequences.
- Infection, Bleeding.
- Immunosuppression modification if complication from MBS may have impact on graft survival.

> Am J Transplant. 2013 Feb;13(2):363-8. doi: 10.1111/j.1600-6143.2012.04318.x.
Epub 2012 Nov 8.

Combined liver transplantation and gastric sleeve resection for patients with medically complicated obesity and end-stage liver disease

J K Heimbach [1], K D S Watt, J J Poterucha, N Francisco Ziller, S D Cecco, M R Charlton, J E Hay, R H Wiesner, W Sanchez, C B Rosen, J M Swain

Patients with BMI>35 were enrolled

37 pts achieved weight loss and underwent LT alone, 7 Underwent S-LT

- LT alone

Weight gain to BMI>35- 21/34

Post LT-DM- 12/34

Steatosis- 7/34

3 Deaths, 3 Graft losses.

- S-LT

Substantial weight loss- Mean BMI 29

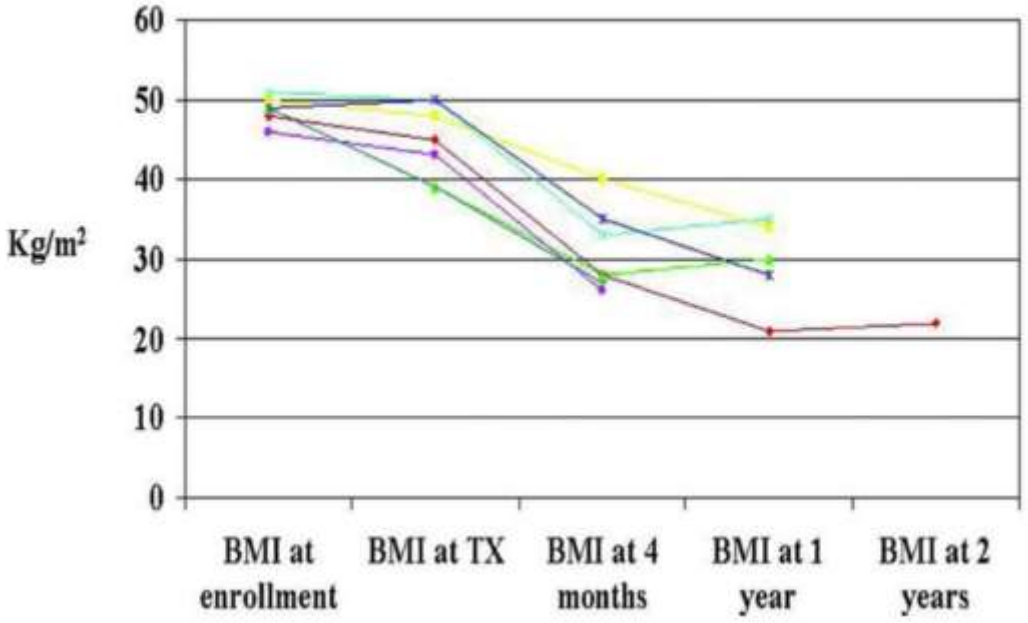
No DM

No Steatosis

No deaths, No Graft Loss

1 Sleeve Leak, 1patient with excess weight loss

BMI Trends for S-LT



BMI trends for those patients who underwent combined liver transplant plus sleeve gastrectomy (N = 7). Mean follow-up is 17 mo. Reproduced from original publication Heimbach JK,et al. *Am J Transplant*. 2013;13(2):363-368

> Liver Transpl. 2023 Apr 1;29(4):422-430. doi: 10.1002/lt.26560. Epub 2022 Sep 9.

Combined liver transplantation and sleeve gastrectomy: Report of a brief-interval staged approach

Nabil Tariq [1], Ashish Saharia, Ugoeze Nwokedi, Mark J Hobeika, Constance M Mobley, David Hsu, Lucy M Potter, Linda W Moore, Ahmed Elaileh, Vadim Sherman, R Mark Ghobrial

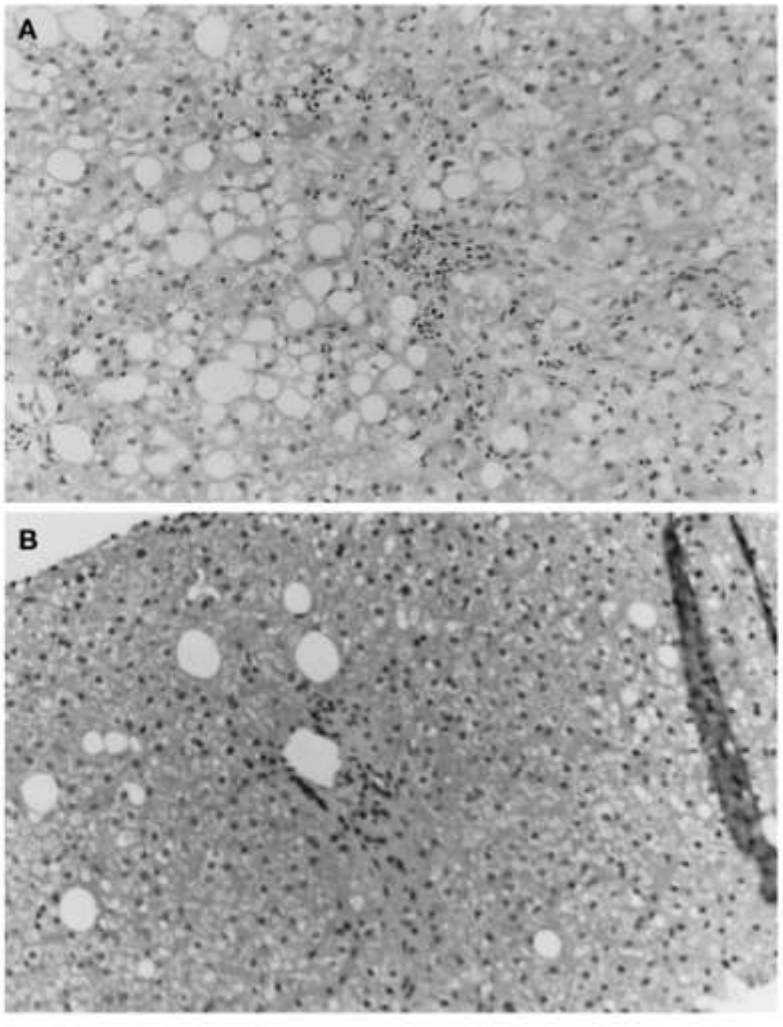
14 Cases Two stage LT-SG, 28 Controls Two stage LT
Similar MELD

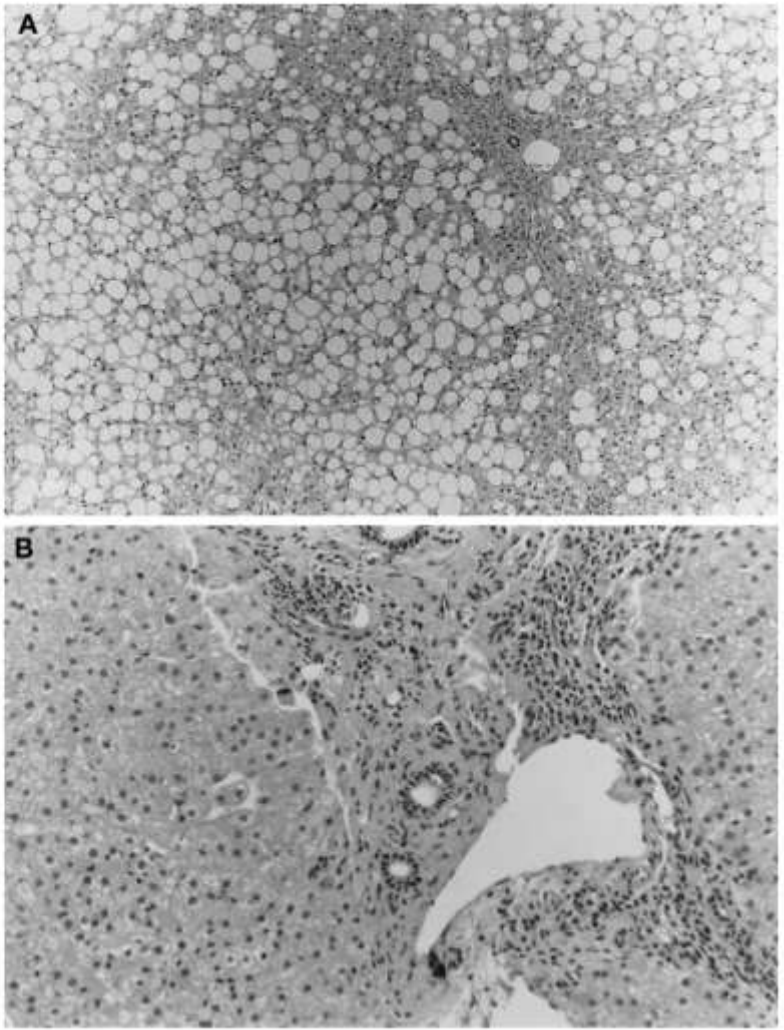
EWL at 1 Year- 74% VS 15.8%
Graft survival- 92.9 vs 89.3%
No reintervention due to SG
Maybe a feasible option of performing SG in High risk patients.

ROUX-EN-Y GASTRIC BYPASS FOR RECURRENT NONALCOHOLIC STEATOHEPATITIS IN LIVER TRANSPLANT RECIPIENTS WITH MORBID OBESITY

ANDREA DUCHINI AND MATHEW E. BRUNSON[1]

Division of General Surgery and Organ Transplantation and Division of Gastroenterology/Hepatology, Scripps Clinic and Research Foundation, La Jolla, California





Safety and feasibility of sleeve gastrectomy in morbidly obese patients following liver transplantation

Matthew Y. C. Lin · M. Mehdi Tavakol · Ankit Sarin · Shadee M. Amirkiai · Stanley J. Rogers · Jonathan T. Carter · Andrew M. Posselt

- Comparable weight loss with non OLT recipients
- Major complication related to simultaneous mesh repair of hernia in one patient.
- Another patient required conversion to gastric bypass for persistent dysphagia.

Laparoscopic Sleeve Gastrectomy for Morbid Obesity in Patients After Orthotopic Liver Transplant: a Matched Case-Control Study

Levan Tsamalaidze[1] · John A. Stauffer[1] · Lisa C. Arasi[1] · Diego E. Villacreses[1] · Jose Salvador Serrano Franco[2] · Steven Bowers[1] · Enrique F. Elli[1]

- Looked at two groups of pts one with SG after OLT and SG without OLT

  Complications similar

  Less EWL in OLT group compared to Non OLT group.

  Non OLT group shorter Hospital stay.

  Resolution of Obesity related comorbidities similar between two groups.

  Major complications in SG group was 25% including need for sleeve dilation.

  All major complications related to poor oral intake.

  No Liver complications, No alteration in Immunosuppression.

GLP-1

	Liraglutide	Placebo	Relative risks or mean changes (95% CI) from baseline to 48 weeks (liraglutide vs placebo)	p value*
Primary outcome				
Number of patients with paired liver biopsies	23	22	-	-
Patients with resolution of non-alcoholic steatohepatitis	9 (39%)	2 (9%)	4·3 (1·0 to 17·7)	0·019

LEAN Trial- NASH resolution-39% vs 9% Placebo Group.

- Tirzepatide- 8% reduction in Liver fat.

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Placebo-Controlled Trial of Subcutaneous Semaglutide in Nonalcoholic Steatohepatitis

P.N. Newsome, K. Buchholtz, K. Cusi, M. Linder, T. Okanoue, V. Ratziu, A.J. Sanyal, A.-S. Sejling, and S.A. Harrison, for the NN9931-4296 Investigators*

- Improvement of NASH- 40% 0.1mg, 36% 0.2mg, 59%- 0.4mg, 17%- Placebo
- Improvement of Fibrosis- 43% in 0.4mg group and 33% in Placebo

Conclusions

- MBS in the context of Liver transplant is a very important tool to help pts qualify for liver transplant and to prevent NAFLD in transplant patients.
- Sleeve gastrectomy seems the safest.
- Medical therapy with GLP-1 and GIP coagonists may be useful as a stand alone strategy in high risk surgical patients or as combination/rescue therapy along with MBS.

Thank You