



Efficacy of Endoscopic Sleeve Gastroplasty in treatment of Metabolic Syndrome



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Introduction

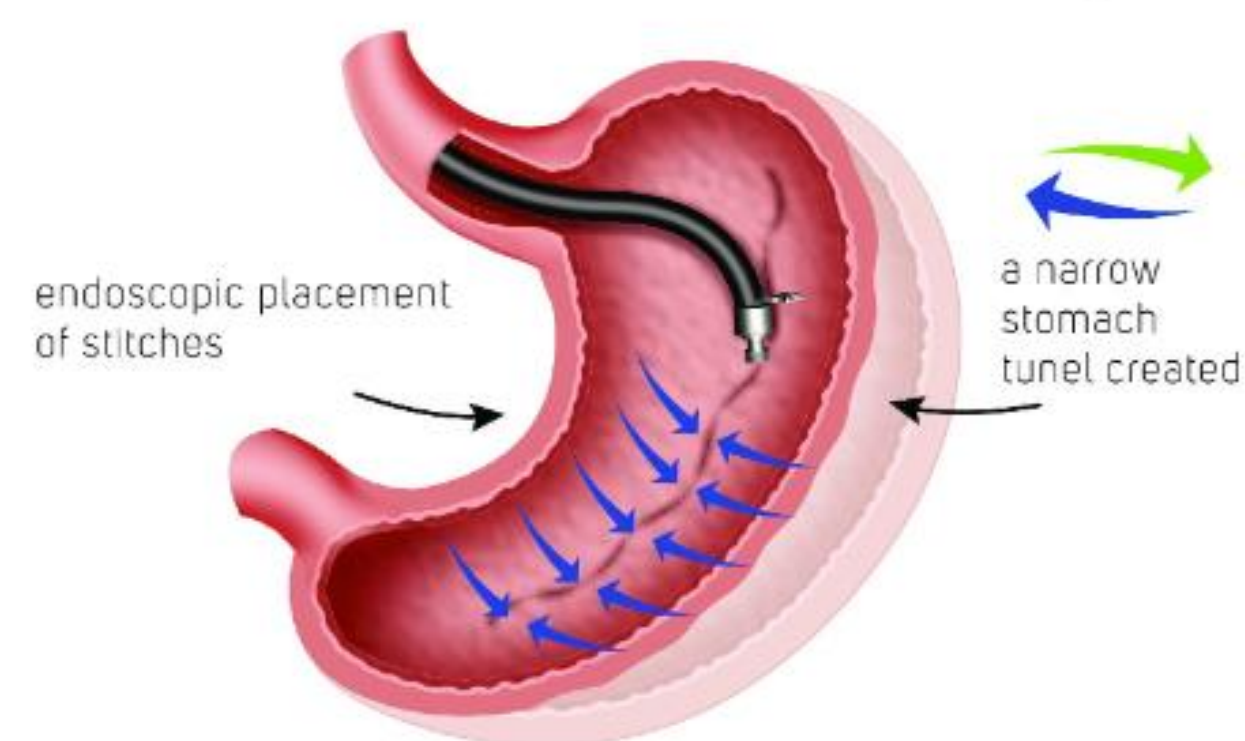
Endoscopic sleeve gastroplasty (ESG) is a novel technique developed as a minimally invasive alternative to laparoscopic sleeve gastrectomy (LSG). A minimum of 10% Total body weight loss (%TBWL) is required to reverse the metabolic syndrome. Our aim from this meta-analysis is to evaluate if ESG can reverse the metabolic syndrome.

Methods

This systematic review and meta-analysis followed PRISMA guidelines and included studies from PubMed up until May 2022. We included peer reviewed studies that contained at least 10 adult patients and tracked (%TBWL) after at least one-month post-procedure and included no other weight loss intervention besides ESG.

Endoscopic sleeve gastroplasty
Non-surgical weight loss procedure

ESG



Results

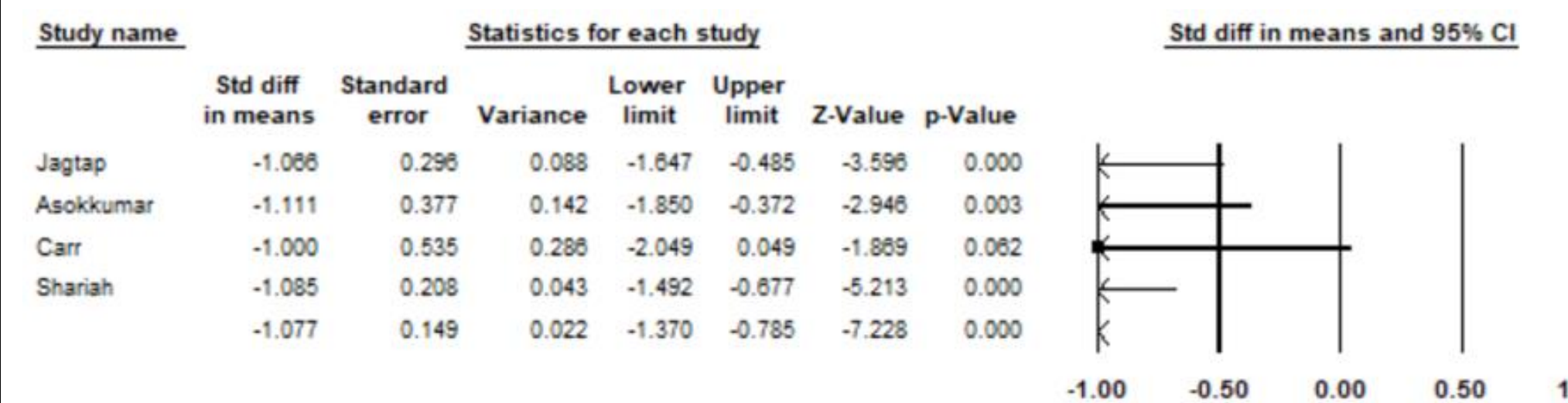
Our search resulted in 33 studies that fit inclusion criteria, including 4087 patients in total. Average BMI before intervention was 37.5 kg/m².

After pooling weight loss data, we found that percent total weight loss (%TWL) at 1, 3, 6, 12, 18, and 24 months was 8.9%, 12.9%, 15.6%, 18.0%, 16.4%, and 17.1% respectively. There was a decrease in BMI after the procedure and the age, gender, starting BMI, and number of sutures did not correlate with %TBWL at one year.

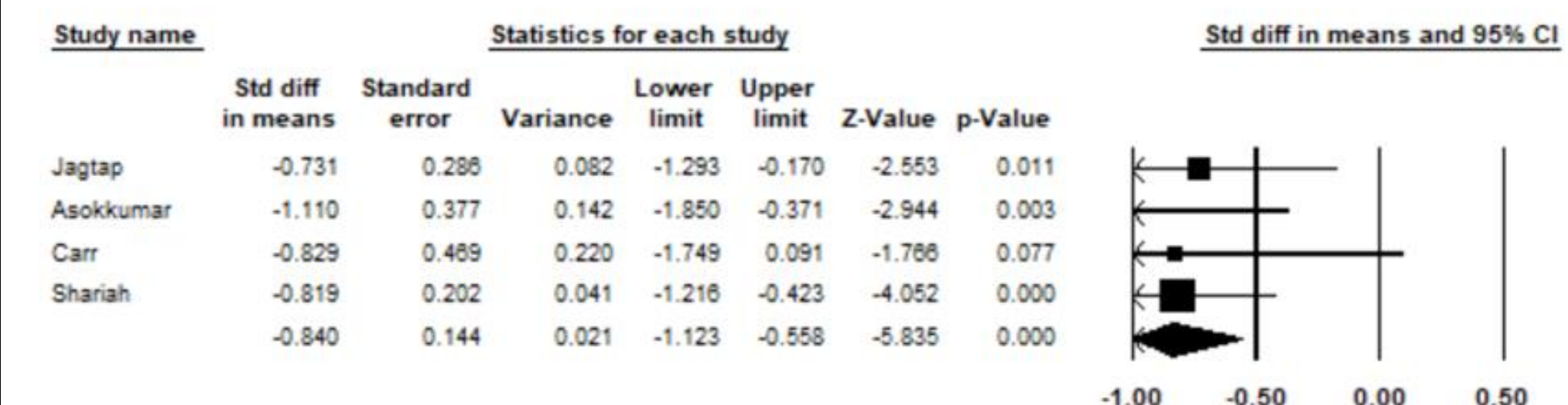
A subgroup analysis of these studies showed an improvement in NASH (decrease of ALT by 19.3 IU/L, CI: 13.3 to 25.8); diabetes (decrease in HBA1C of 1.2 mmol/mol, CI: 0.83 to 1.5); and dyslipidemia (decrease in triglycerides of 0.6 mmol/L, CI: 0.2 to 1.0). No mortality was reported and severe adverse events were rare (1.2%, Odds Ratio (OR):) and associated with older age, but not starting BMI (p=.015; .26). Only one study reported a significant mean drop in BP and this variable was not included in our meta-analysis

Metabolic changes after ESG

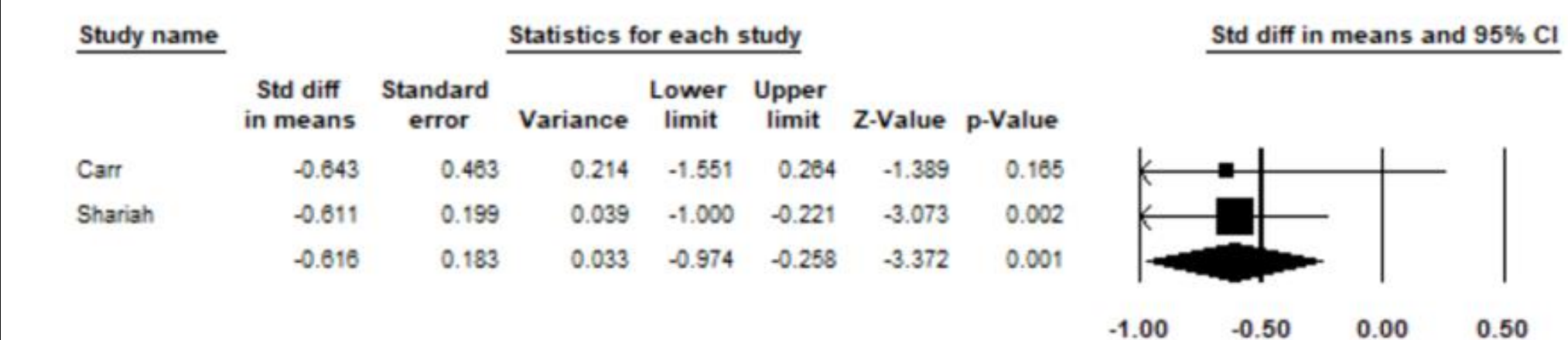
Hemoglobin A1C



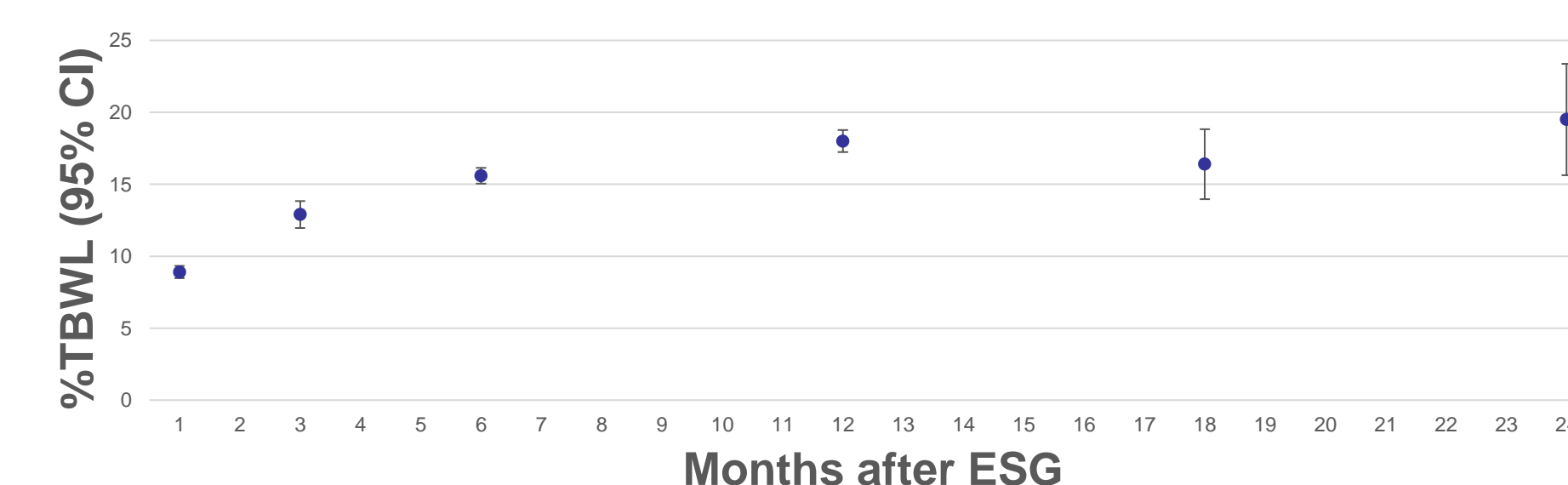
LFT in NASH



Triglycerides



%TBWL vs Months after ESG



Conclusion

We provide evidence that the weight loss associated with ESG contributes to the reversal of metabolic syndrome, as documented by significant improvement in diabetes, NASH, and HLD. Research estimates that metabolic syndrome is on the rise and that the cost of healthcare for patients with severe metabolic syndrome more than doubles.

Our meta-analysis also suggests that weight loss from LSG is sustained up to two years. Further studies must document sustained long term weight loss. ESG may present an alternative for weight loss in patients who do not qualify for LSG or who desire more moderate weight loss.

References

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