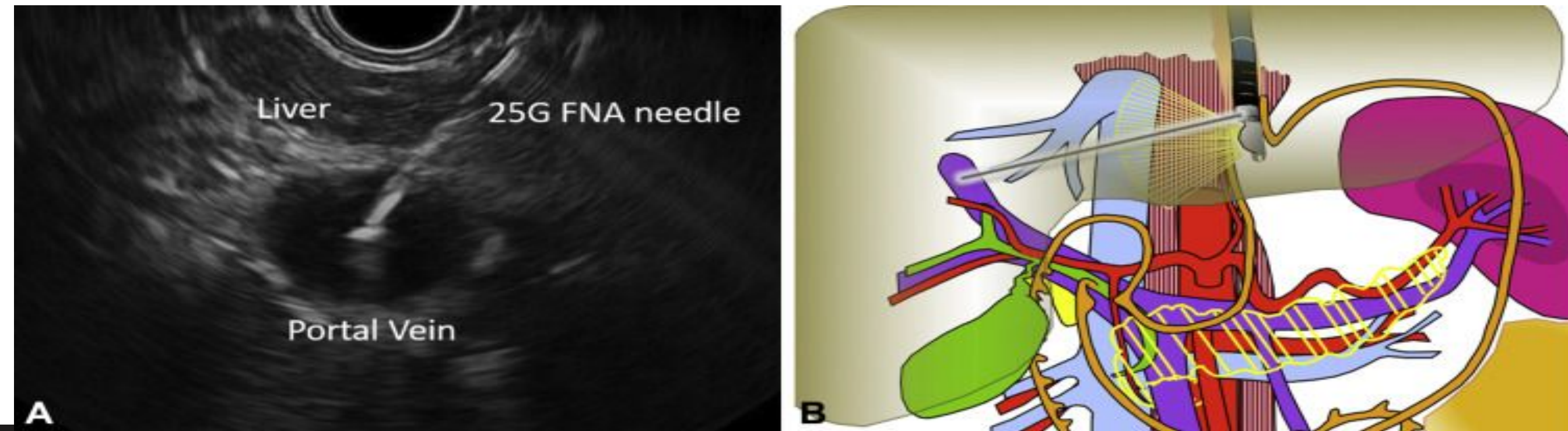


EUS guided PPG measurement is emerging as an alternative to IR pressure gradients. This meta-analysis shows that there is a good correlation with clinical Portal Hypertension and PPG using EUS.



Introduction

Measuring portal pressure gradient helps to assess the severity of complications in patients with chronic liver disease. EUS guided portal pressure gradient (PPG) measurement is a novel technique to assess portal hypertension. This is a systematic review and meta-analysis to assess the safety and efficacy of this novel method to assess portal pressure gradient.

Methods

Selection criteria included studies with EUS guided PPG measurement. Data was collected and extracted from medline, pubmed, and Ovid journals. Statistical analysis was done using fixed and random effects models to calculate the pooled proportions.

Results

On initial search 136 articles were found, out of which 51 were selected and data was extracted from 4 studies (n=128) that looked at EUS-guided PPG measurements. The pooled proportions of patients with successful portal pressure measurement was 91.61% (95% CI = 86.25 to 95.74). Patients with failed portal pressure measurement had a pooled proportion of 2.22% (95% CI = 0.40 to 5.45). The pooled analysis of patients with PPG >5 mmHg was 53.06% (95% CI = 44.48 to 61.55) and patients with clinically significant PPG >10 mmHg was 30.51% (95% CI = 22.92 to 38.67). We assessed all patients with clinically significant PPG for esophago-gastric varices and the pooled data of patients with varices were 31.65% (95% CI = 23.96 to 39.87). Post-procedural complications included post-procedure bleeding, perforation, and infection with a pooled proportion of 0% (95% CI = 0 to 2.85). The pooled analysis for post-procedure abdominal pain was 6.15% (95% CI = 2.68 to 10.91), emergency department visits was 3.11% (95% CI = 0.83 to 6.77), and post-procedural sore throat was 2.82% (95% CI = 0.68 to 6.35).

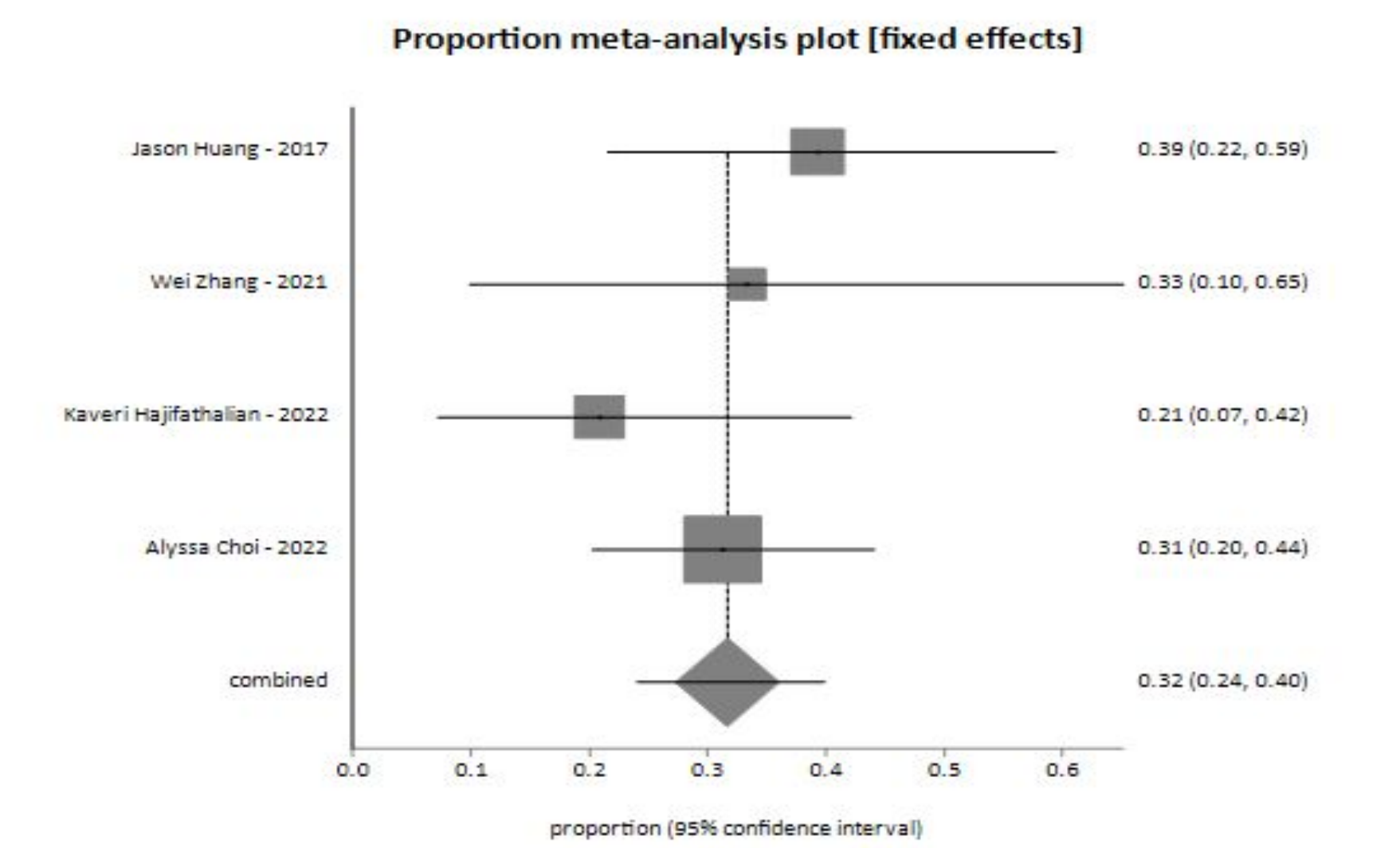
Conclusion

EUS guided PPG measurement is a novel method to assess portal hypertension and can be used as an alternative for IR guided portal pressure measurement. It has technical success and minimal post procedural complications. There is good correlation with clinical portal hypertension and portal pressure gradients. This can be used as a one stop shop to assess varices, portal pressure measurement, and liver biopsy under one anesthetic procedure which makes it a more efficient and cost effective alternative for an IR procedure.

Basic characteristics of the included studies

Study	Type of study	No. of patients	Sex M/F	Etiology				Successful PPG		No. of patients with varices
				Alcohol liver disease	NAFLD	Other liver disease	No prior liver disease	> 5 mm Hg	> 10 mmHg	
Jason huang	Retrospective study	28	18/10	6	2	20	0	15	10	11
Wei zhang	prospective study	12	9/3	0	0	12	0	9	9	4
Kaveri Hajifathallah	prospective study	24	5/19	3	15	6	0	15	5	5
Alyssa Choi	retrospective study	64	40/24	6	18	11	29	29	15	20

Pooled percentage of patients with PPG > 10 mm Hg and esophageal varices



Funnel plot showing publication bias

