

BACKGROUND

- Barrett's esophagus (BE) is a precursor condition to esophageal adenocarcinoma (EAC), resulting in transformation of the squamous epithelium of distal esophagus to columnar-lined epithelium with intestinal metaplasia (IM).
- Liquid nitrogen spray cryotherapy (LNSC) is a non-contact method of BE eradication and has been used both as primary and salvage therapy.
- We conducted a systematic review and meta-analysis to assess the safety and efficacy of LNSC.

METHODS

- We searched multiple databases from inception through December 2021 to identify studies on use of LNSC for Barrett's neoplasia.
- Pooled estimates were calculated using random-effects model and results were expressed in terms of pooled proportions with relevant 95% confidence intervals (CIs).

OUTCOMES ASSESSED

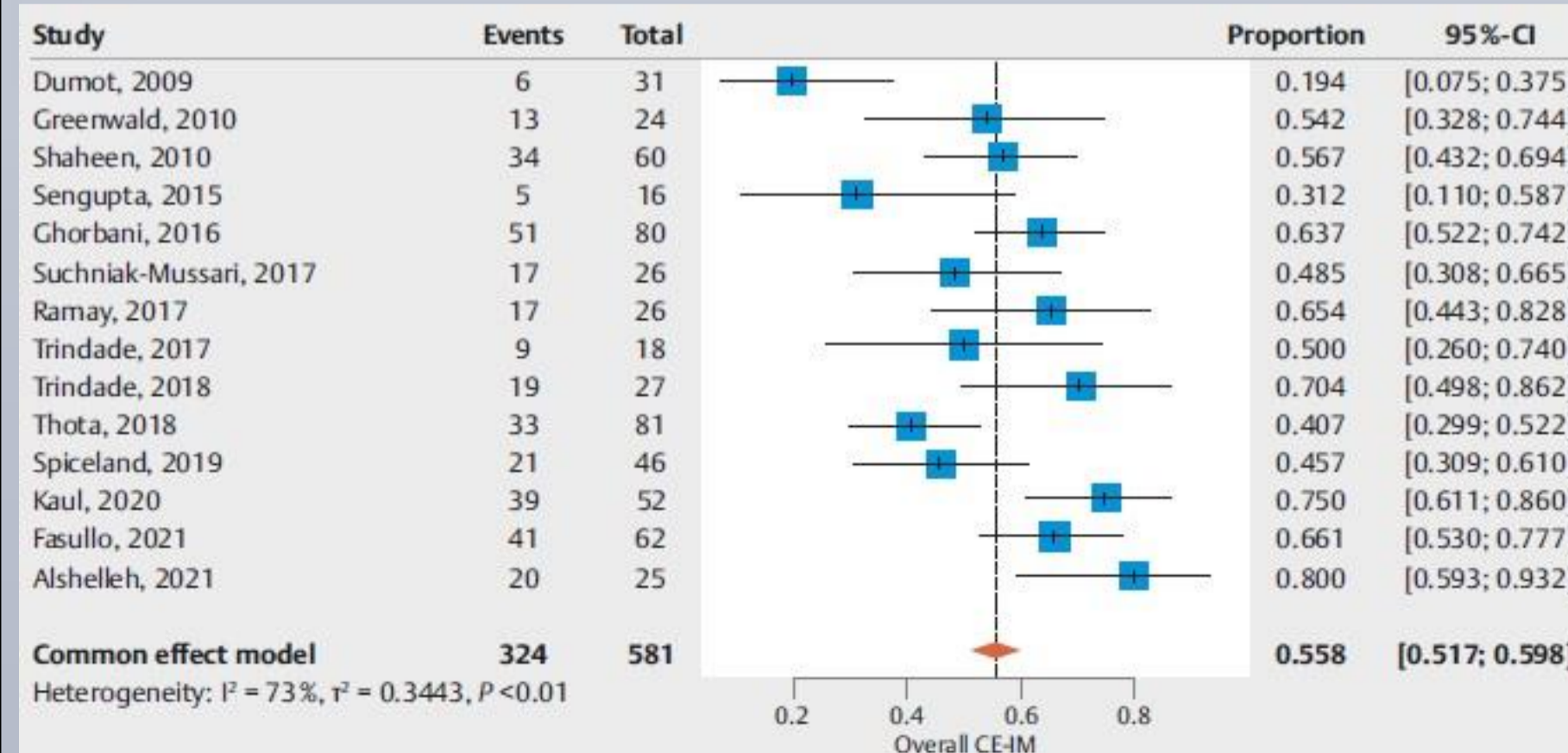
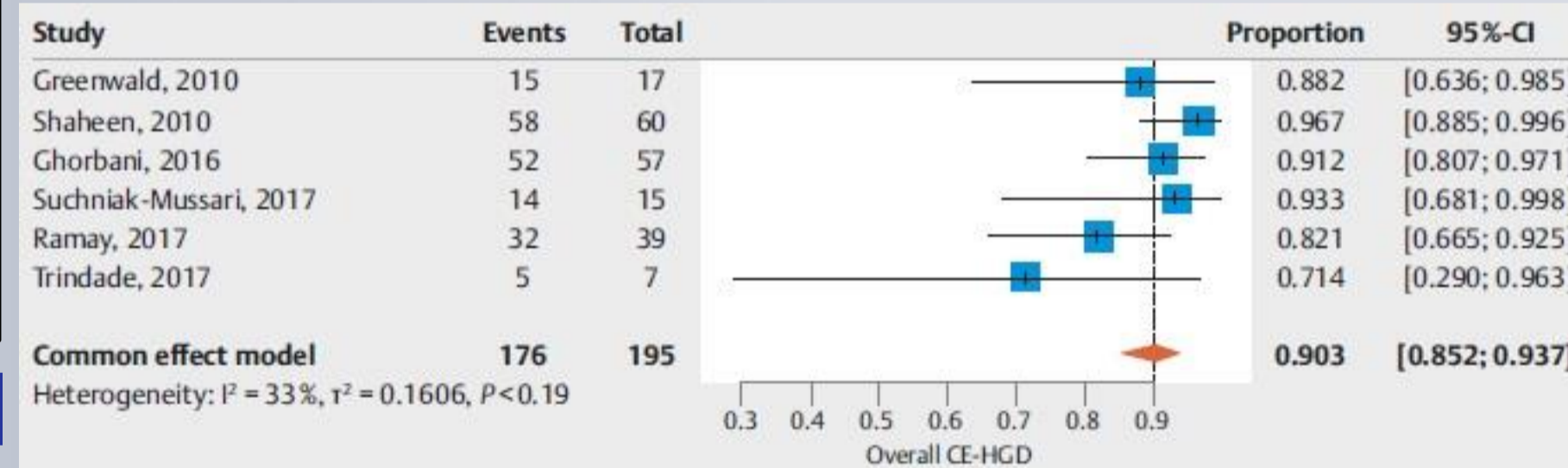
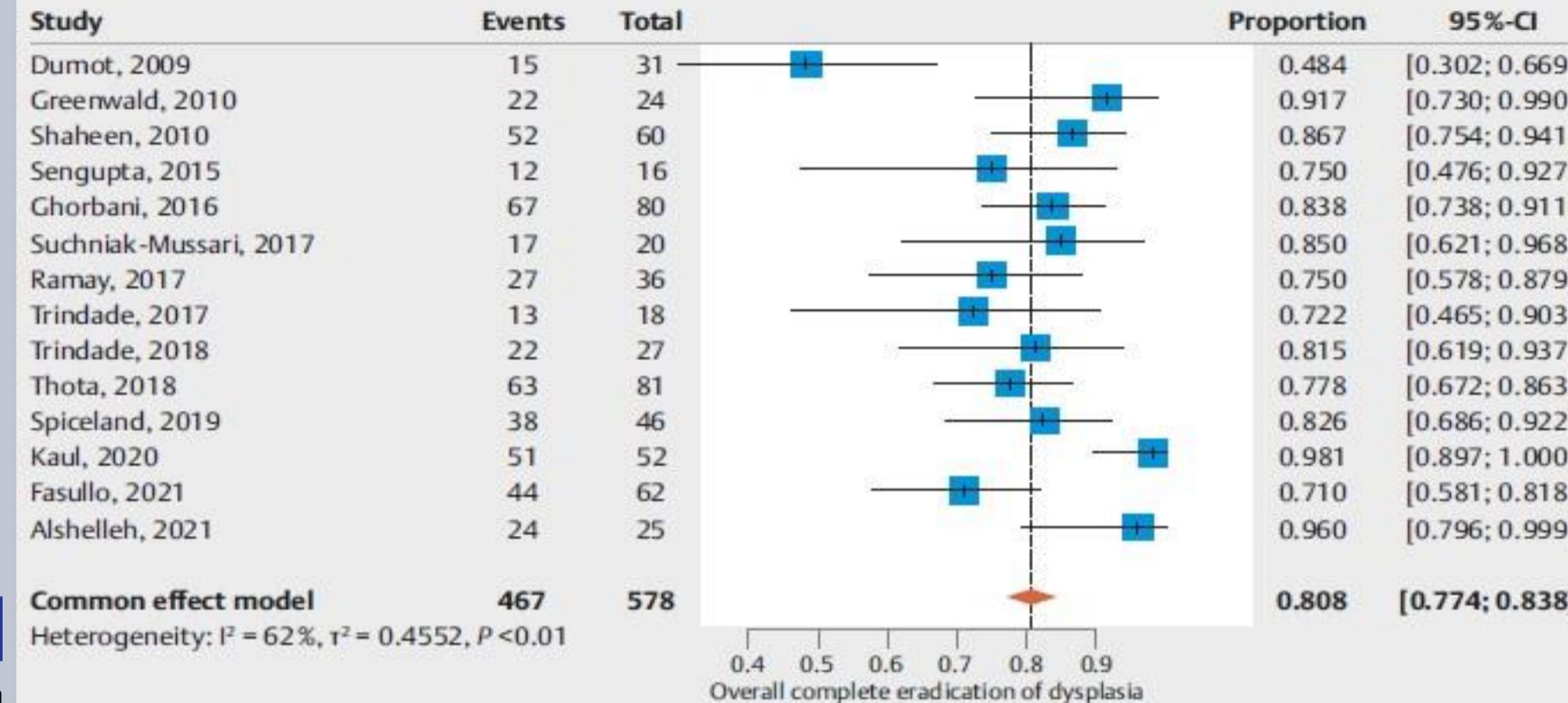
I. Efficacy outcomes

- Complete eradication of dysplasia (CE-D)
- Complete eradication of high-grade dysplasia (CE-HGD)
- Complete eradication of intestinal metaplasia (CE-IM)
- Recurrence of dysplasia (RE-D) and intestinal metaplasia (REIM)
- Failures (F) - defined as persistence of the previously diagnosed IM, dysplasia, or cancer, or progression to worsening dysplasia or cancer

II. Safety outcomes

- Pooled incidence of post therapy strictures
- Pooled incidence of post therapy perforation
- Pooled incidence of post therapy pain

RESULTS



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- Overall pooled rates of CE-D, CE-HGD and CE-IM were 80.8% (95% CI [77.4–83.8]; I² 62%), 90.3% (CI [85.2–93.7]; I² 33%) and 55.8% (CI [51.7–59.8]; I² 73%), respectively. (► Fig. 1, 2, 3)
- Among the studies with mean/median follow-up time of greater than 24 months pooled rates of CE-D and CE-IM were 83.6% and 54.7%, respectively.
- In LNSC-naïve patients with prior history of endoscopic resection, overall pooled rates of CE-D and CE-IM were 79.9% (CI [73.3–85.2]; I² 50%) & 67.1% (CI [59.5–73.8]; I² 20%), respectively.
- Pooled rate of RE-D was 19.2% (CI [14–25.8]; I² 78%) & RE-IM was 14.8% (CI [10.3–20.7]; I² 41%).
- Pooled rate of treatment failure was 23.6% (CI [19.4–28.3]; I² 73%).
- Pooled rate of persistent dysplasia (including HGD and LGD) was 13% (CI [7.8–20.7]; I² 64%), persistent IM, 31.1% (95% CI [23.1–40.5]; I² 83%) and progression to cancer was 6.3% (CI [3–12.6]; I² 7%).
- Pooled rate of post-cryotherapy strictures was 4%, perforation 0.8% and post therapy chest and/or abdominal pain was 10.3%.

CONCLUSION

- Our analysis, the largest one to date, shows that LNSC in patients with BE, including those with prior history of endoscopic resection has acceptable efficacy and safety profile.

Manuscript Link →

