

# Systematic review and meta-analysis of controlled and prospective cohort efficacy studies of endoscopic radiofrequency for treatment of

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## ABSTRACT

**Background:** The endoscopic radiofrequency procedure (Stretta) has been used for more than a decade to treat patients with gastroesophageal reflux disease (GERD). However, the efficacy of the procedure in improving objective and subjective clinical endpoints needs to be further established.

**Aim:** To determine the efficacy of the Stretta procedure in treating patients with GERD, using a systematic review and meta-analysis of controlled and cohort studies.

**Methods:** We conducted a systematic search of the PubMed and Cochrane databases for English language clinical studies of the Stretta procedure, published from inception until May 2016. Randomized controlled trials (RCTs) and cohort studies that included the use of the Stretta procedure in GERD patients were included. A generalized inverse weighting was used for all outcomes. Results were calculated by both fixed effects and random effects model.

**Results:** Twenty-eight studies (4 RCTs, 23 cohort studies, and 1 registry) representing 2468 unique Stretta patients were included in the meta-analysis. The (unweighted) mean follow-up time for the 28 studies was 25.4 [14.0, 36.7] months. The pooled results showed that the Stretta reduced (improved) the health-related quality of life score by -14.6 [-16.48, -12.73] ( $P < 0.001$ ). Stretta also reduced (improved) the pooled heartburn standardized score by -1.53 [-1.97, -1.09] ( $P < 0.001$ ). After Stretta treatment, only 49% of the patients using proton pump inhibitors (PPIs) at baseline required PPIs at follow-up ( $P < 0.001$ ). The Stretta treatment reduced the incidence of erosive esophagitis by 24% ( $P < 0.001$ ) and reduced esophageal acid exposure by a mean of -3.01 [-3.72, -2.30] ( $P < 0.001$ ). Lower esophageal sphincter (LES) basal pressure was increased post Stretta therapy by a mean of 1.73 [-0.29, 3.74] mmHg ( $P = \text{NS}$ ).

**Conclusions:** The Stretta procedure significantly improves subjective and objective clinical endpoints, except LES basal pressure, and therefore should be considered as a viable alternative in managing GERD.

**Keywords:** Endoscopy; GERD; Heartburn; PPI; Radiofrequency ablation; pH test.