The impact of laparoscopic ovarian drilling on AMH and ovarian reserve: a meta-analysis

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Abstract:

Laparoscopic ovarian drilling (LOD) has been widely used as an effective treatment of anovulatory women with polycystic ovarian syndrome (PCOS). However, there has been a growing concern over a possible damaging effect of this procedure on ovarian reserve. The objective of this study was to investigate the hypothesis that LOD compromises ovarian reserve as measured by post-operative changes in circulating anti-Müllerian hormone (AMH). This meta-analysis included all cohort studies as well as randomised controlled trials (RCTs) investigating serum AMH concentrations and other ovarian reserve markers in women with PCOS undergoing LOD. Various databases were searched including MEDLINE, EMBASE, Dynamed Plus, ScienceDirect, TRIP database, ClinicalTrials.gov and Cochrane Library from January 2000 to December 2016. Sixty studies were identified, of which seven were deemed eligible for this review. AMH data were extracted from each study and entered into the RevMan software to calculate the weighted mean difference (WMD) between pre- and post-operative values. Pooled analysis of all studies (n = 442) revealed a statistically significant decline in serum AMH concentration after LOD (WMD −2.13 ng/mL; 95% confidence interval (CI) −2.97 to −1.30). Subgroup analysis based on duration of follow-up, AMH kit, laterality of surgery and amount of energy applied during LOD consistently showed a statistically significant fall in serum AMH concentration. In conclusion, although LOD seems to markedly reduce circulating AMH, it remains uncertain whether this reflects a real damage to ovarian reserve or normalisation of the high pre-operative serum AMH levels. Further long-term studies on ovarian reserve after LOD are required to address this uncertainty.

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