

Short Communication



Preoperative Treatment with Lugol Solution for Graves' Disease

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Received: Aug 11, 2018

Revised: Oct 1, 2019

Accepted: Oct 6, 2019

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

ABSTRACT

Graves' disease is one of the commonest causes of hyperthyroidism. Pre-treatment with Lugol solution, containing iodine/potassium iodide, to induce euthyroidism before surgery may be suggested, especially in case of adverse events due to antithyroid medication. Whether post-operative outcomes are any different following a course of Lugol solution in patient with Graves' disease is not well-documented in the literature. It is definite that large, prospective, randomized controlled trials of clinical and scientific are warranted to answer whether or not preparation with Lugol solution is necessary prior to surgery for Graves' disease.

Keywords: Graves's disease; Thyroidectomy; Lugol solution

Total thyroidectomy is the preferred operative approach for Graves' disease (GD). Guidelines of the American Thyroid Association (ATA) suggest the administration of potassium iodide and achievement of euthyroid state before operation (1,2). Preoperative treatment with lugol solution (LS)—introduced in the 1920s—led to a decline in endocrine operative mortality. In Europe, in many hospitals up to the 1980s and 1990s, GD was pre-treated with LS as standard of care (1,2). As a surgical advantage, the significantly reduced blood flow of the hypervascularized thyroid gland was observed after several days of LS administration (1,2). Today, following the establishment of beta-blockers and antithyrototoxic agents, pre-treatment with LS is usually limited to exceptional situations. However, it is recommended as a routine procedure by ATA in its guidelines (“...Whenever possible, patients undergoing thyroidectomy should be euthyroid with methimazole, and pancreatic potassium iodide should be given in the preoperative period...”) (1). Whether preoperative pretreatment of GD with LS is actually advantageous from a surgical point of view should be clarified by a systematic literature analysis.

On the basis of Ovid Medline, PubMed and the ATA website, 194 English-language papers on the subject of preoperative treatment with LS were identified in the management of GD (2). Four papers, published between 2007 and 2014, were considered suitable for analysis and grouped according to their evidence (2,3). One paper (A: Erbil et al., (4)) had evidence level 1,

Author Contributions

Conceptualization: Özer Makay, Hui Sun, Ettore Caruso, Antonella Pino, Alessandro Pontin, Tommaso Mandolino, Gianlorenzo Dionigi; Writing - original draft: Özer Makay, Hui Sun, Ettore Caruso, Antonella Pino, Alessandro Pontin, Tommaso Mandolino, Gianlorenzo Dionigi; Writing - review & editing: Özer Makay, Hui Sun, Ettore Caruso, Antonella Pino, Alessandro Pontin, Tommaso Mandolino, Gianlorenzo Dionigi.

and the other 3 papers were classified as level 2 (B: Yabuta et al., (5); C: Shinall et al., (6); D: Santosh et al. (7)).

In detail, the mentioned works showed the following results (4-7):

- A: Vascularization and intraoperative blood loss were significantly reduced after LS administration.
- B: No difference of intraoperative blood loss between patients with or without pre-treatment with LS.
- C: No difference of intraoperative blood loss in patients with hyperthyroidism due to autonomic nodular goiter or GD, with or without pre-treatment by LS.
- D: No difference in the postoperative complication rates in patients with or without LS.

The present systematic literature analysis does not provide sufficient evidence for an advantage of the routine preoperative administration of LS in GD (2). Neither the intraoperative blood loss, nor the postoperative complication rates differed significantly from those with beta-blockers and/or pretreated patients (2). The recommendation on LS pre-treatment given in the ATA guidelines therefore lacks its evidence-based basis (1). The authors' recommendation for carrying out a prospective randomized study will certainly only be accepted where the preoperative administration of LS is still a practical routine in the surgical treatment of GD (2,3,8).

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