The effect of Povidone-iodine (PVI) irrigation on thyroid function test in children

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Background and aim:

Povidone-iodine (PVI) is an antiseptic solution with bactericidal properties commonly used in patients undergoing intra-abdominal surgery. The aim of this study was to assess systemic absorption of total iodine by its effect on thyroid function test after PVI irrigation for perforated appendicitis surgery.

Methods:

Ten patients with perforated appendicitis got a thyroid function test (TSH and free T4) before and after surgery for perforated appendicitis. Each patient received a dilute PVI solution (1:9) in a dose of 10 mL/kg, the irrigation was a one minute 12 time in the right lower quadrant as well of the pelvis after the appendix was removed by laparoscopic surgery

Results:

Nine of ten patients had normal thyroid function tests before and after the PVI irrigation. One patient with a strong family history of hypothyroidism was found to have a high TSH prior to the procedure and was excluded, subsequent testing confirmed the diagnosis of thyroiditis with hypothyroidism (positive Anti TPO) and was treated appropriately with Levothyroxine after surgery.

Conclusions:

A single use of intraoperative bowel irrigation with povidone-iodine may be performed with practically negligible risk of affecting the thyroid function. Screening for thyroid disease is not recommended prior to PVI irrigation unless it is a part of the standard medical approach when there is a strong family history and /or suggestive symptoms. Caution may be need with PVI is used with repeated procedures or when body surface area of the child is small.