Which Haemostatic Devices in Thyroid Surgery? Collection Data from 2926 Consecutive Patients Undergoing Primary or Completion Thyroidectomy

Zampino L\textsuperscript{1}, Orlando G\textsuperscript{2}, Zingone F\textsuperscript{3}, Vitale M\textsuperscript{4} and Puzziello A\textsuperscript{1}

\textsuperscript{1}General surgery, Department of Medicine, University of Salerno, Baronissi (SA), Italy
\textsuperscript{2}School of General Surgery, Department of Medicine, University “Magna Graecia”, Catanzaro, Italy
\textsuperscript{3}Gastroenterology unit, Department of Medicine, University of Salerno, Baronissi (SA), Italy
\textsuperscript{4}Endocrinology, Department of Medicine, University of Salerno, Baronissi (SA), Italy

The most frequent complications following thyroid surgery are hypocalcaemia and recurrent laryngeal nerve injury (RLNI). The use of new haemostatic devices based on different kinds of energy (ultrasounds (US) for Harmonic Scalpel and radio-frequency for Ligasure) might decrease the rate of these complications.

Data were prospectively collected by questionnaires from 39 endocrine surgery units affiliated to the Italian Endocrine Surgery Units Association (Club delle Unità di EndocrinoChirurgia - UEC), where thyroid surgery is routinely performed. The study population was composed of 2926 consecutive patients (77.7\% females) undergoing primary or completion thyroidectomy. The median age was 52 (range, 18-79). 2497 (85.3\%) patients underwent surgery because of benign diseases. We focused on complications following operations performed with bipolar or ultrasonic devices. In particular, we analysed 635 (21.7\%) bipolar and 647 (22.1\%) ultrasound interventions. Out of a total of 1282 operations by bipolar and ultrasound, 359 (28\%) patients developed post-operative hypocalcaemia: the risk of this complication was lower in the ultrasound group (27.2\%, 176 out of 647 patients) compared to the bipolar group (28.8\%, 183 out of 635 patients), though the result was not statistically significant (p = 0.08). The RLNI affected 64 (4.99\%) patients. In this case the complication rate was statistically lower in the ultrasound group compared to the bipolar one (respectively 18 (2.8\%) and 46 (7.2\%), p < 0.001).

According to this study, the use of Ultrasound for haemostasis in thyroid surgery can reduce the risk of complications such as post-operative hypocalcaemia and RLNI.