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Proceedings of the First Italian Conference on Thyroid Minimally Invasive Treatments and foundation of the Italian Research Group for Thyroid Minimally Invasive Procedures

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Introduction

During the last few decades, a new approach to the non-surgical management of thyroid nodular disease was proposed and thoroughly assessed. Presently several centers in different parts of the world are effectively treating their patients with symptomatic thyroid nodules by means of various ultrasound (US)-guided minimally invasive treatments (MIT). A number of case reports, retrospective and prospective randomized clinical trials and a few review articles are have been published. However, a multidisciplinary panel of experts in thyroid MIT has yet to make a comprehensive statement with state of art recommendations for clinical practice.

On the basis of these considerations, the “First Italian Conference on Thyroid Minimally Invasive Treatments” was held in Milan, Italy, on February 2nd, 2018. With more than 130 multidisciplinary participants and 20 faculty members with specific expertise in the field of thyroid disease, it was the first and largest meeting fully dedicated to an appraisal of the role of MIT for thyroid lesions. Attending specialists who are involved in the treatment of thyroid diseases, included radiologists, surgeons, endocrinologists, and pathologists. In addition, a group of dedicated nurses attended.

During the meeting, the Italian Research Group for Thyroid Minimally Invasive Procedures (IRGT-MIT) was formed. The foundation of this group was unanimously approved by the participants.

The IRGT-MIT is aimed at creating a fellowship among all healthcare professionals in Italy that are

involved in the treatment of thyroid diseases, with particular focus to those interested in promoting research and clinical practice on thyroid minimally invasive treatments.

The official website of the group is <http://www.termoablazionetiroide.it/>

Discussion

During the one-day meeting, the most relevant evidence regarding minimally invasive treatments of benign and malignant thyroid diseases was presented and discussed. During the morning session, Drs. Rago and Cantisani highlighted the crucial role of ultrasound examination in thyroid disease. Particularly, Dr. Rago reported on the increasing number of papers published regarding the Thyroid Imaging, Reporting and Data Systems (TI-RADS) classification [1,2]. This lecture highlighted the most important ultrasound features and the crucial role of achieving a common reporting system for a more homogeneous patients' care. Dr. Cantisani then reported on the potential role of ultrasound elastography to improve diagnostic accuracy of ultrasound evaluation of thyroid nodules [3–5]. This emerging technique will see a lot of attention in the future. Dr. Achille subsequently reported on surgical approaches for the treatment of benign thyroid nodules. This lecture highlighted the most critical aspects of surgical thyroidectomy and pointed to its non-negligible rate of complications and potential relevant impact on thyroid function.

The keynote lecture of Prof. Solbiati introduced the concept of thyroid minimally invasive treatments. Particularly, Prof. Solbiati, one of the pioneers of ultrasound-guided interventional procedures, reported on the historical role of Italy in the development of minimally invasive treatments of head and neck diseases. From the first treatments of parathyroid tumors with ultrasound guided percutaneous ethanol injection [6] to the most recent application of thermal ablative techniques to the treatment of benign and malignant thyroid diseases [7,8], Italy has always been one of the most active countries in this field. A substantial Italian contribution by Dr. Pacella

and Dr. Papini was made in the development and clinical application of laser ablation technology for thyroid diseases [9,10]. On the topic of thermal ablation of benign nodule minimally invasive treatment, Dr. Gambelunghe and Dr. Cesareo provided clear overviews of the procedural techniques for laser ablation and radiofrequency ablation, respectively. The following discussion identified several technical issues that still need to be addressed and more homogeneous technique standardisation is necessary.

The present evidence on clinical results was subsequently presented. Strong evidence for better results of minimally invasive ablations in comparison with control or even levothyroxine are becoming available, as several papers reports on sustained and stable long term efficacy of these techniques [11–14], with a very low rate of complications in large series of patients [15,16]. Also, initial reports suggest that minimally invasive treatments might be as effective as surgery in the treatment of benign thyroid nodules, with lower rates of complications, reduced post-treatment hypothyroidism, and lower costs [17,18]. Regarding the best technique to perform minimally invasive treatment of benign thyroid nodules, current evidence provides similar results between laser and radiofrequency ablation [7,19], and thus technique for ablation can be chosen according the single centre experience [20]. However, comparison among different studies can be sometimes be difficult because of lack of standardisation in the reporting criteria. Thus, a general agreement on the urgent need for a more homogeneous way of reporting in papers about thyroid thermal ablation raised [21]. Subsequently, Dr. Stacul provided an overview on the potential applications of minimally invasive procedures to hyperfunctioning thyroid nodules. Notably, even though some papers are published on this topic [22–24], strong evidence is still lacking, and larger multicentric trials would be highly beneficial to better clarify the role of minimally invasive treatments for hyperfunctioning thyroid nodules.

In the afternoon, the current evidence and potential future role of minimally invasive procedures in malignant thyroid diseases was discussed. The incidence/detection of small micropapillary thyroid

carcinomas with excellent prognosis is increasing [25], Some thyroid lesions have been reclassified, removing the term “cancer” from their name to highlight their low risk of progression [26]. Because of earlier detection, more and more patients could be over-diagnosed and over-treated for thyroid cancers. Minimally invasive treatments have been applied in the treatment of primary thyroid cancers in small series [27,28] thus potentially representing a strategy to compensate for over-diagnosis by minimizing the invasiveness of over-treatment [29].

Furthermore, minimally invasive treatments including ethanol injection, radiofrequency ablation and laser ablation have been successfully applied in the treatment of recurrent thyroid tumours [30–34], and might represent a promising alternative to surgical reoperation or radioiodine ablation in selected patients.

Finally, take home messages with the preliminary recommendations on the use of MITs for clinical practice were delivered and are posted and accessible on the website of the group, at its website (see above).

In conclusion, participants of the meeting agreed to the necessity of more collaborative projects to provide better evidence regarding the clinical role of minimally invasive treatments for benign and malignant thyroid diseases. Also, participants agreed with the opportunity of making the meeting on minimally invasive thyroid disease a periodical scientific event to debate recent advances on MITs for thyroid diseases, to validate the available evidence, and to promote new topics for multicentre research projects.

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