Summary of proceedings of the second World Congress on Thyroid Cancer

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ABSTRACT: The second World Congress on Thyroid Cancer was held from July 10 to July 14, 2013, in Toronto, Canada. Its purpose was to provide a platform for the multidisciplinary discussion on research, education, and patient management of thyroid malignancy. Herein, we summarize the latest major trends and controversies within the field of thyroid oncology as discussed in the Congress including the use of ultrasound, standardization of cytology, role of molecular testing, treatment options for small recurrence including ablation and observation, management of recurrent laryngeal nerve injury, importance of identification of the external branch of the superior laryngeal nerve, role of minimally invasive thyroid surgery, trends in radioactive iodine treatment, advancements in targeted agents, and the importance of personalizing treatment to individual patients.

INTRODUCTION

The first World Congress on Thyroid Cancer was conceived by the members of the Steering Committee (Figure 1) in 2006 in order to fill a need for multidisciplinary discussion on research, education, and patient management for thyroid malignancy. The first Congress was held in Toronto, Canada, in 2009 and successfully provided a forum for these discussions. Building on its initial success, the second World Congress on Thyroid Cancer was held from July 10 to July 14, 2013, again in Toronto. This Congress was also judged successful according to the outstanding registrant reviews. It was attended by more than 1000 delegates from 61 countries and featured 6 internationally renowned keynote speakers and almost 200 acclaimed faculties from the entire breadth of specialties involved in the care of patients with thyroid cancer. The diverse format of the meeting included keynote lectures, multidisciplinary panels, workshops, instructional courses, meet the professor sessions, video sessions, auxiliary symposia, and scientific and commercial exhibits. Two ultrasound courses (basic and advanced), 1 surgical skills course, and 4 breakfast symposiums were also presented.

The majority of the Congress proceedings, including the slide presentations, can be viewed on the Congress website: http://thyroidworldcongress.com/.

DISCUSSION

The objectives of the second Congress were to: (1) foster a collegial multidisciplinary atmosphere among all stakeholders for the discussion of management of and research in thyroid cancer; (2) discuss and demonstrate all state-of-the-art aspects for the management of and research in the field of thyroid oncology worldwide; and (3) create the groundwork for future direction for management of and research in thyroid cancer.

By all accounts these objectives were met. What follows is a summary of the latest major trends and controversies within the field of thyroid oncology as discussed in the Congress.
more informed discussions with our patients about the risks of malignancy in the nodules they harbor.³ Significantly, the Bethesda classification allows standardization of reporting and a more comparable platform for reporting outcomes worldwide. European classification systems resemble the Bethesda classification system, and there is an ongoing effort to further unify these systems into a universal system.⁴ It was noted during the conference that there is large inter-facility variability in the risk of malignancy associated with each category in the Bethesda classification. Ideally, the specific facility risk of malignancy for each Bethesda category should be determined in order to better inform patients.⁵,⁶

The diagnostic tool that created the most interest at the Congress was molecular testing. Several of these tests have recently become commercially available and readily accessible. Asuragen (Austin, TX) offers the miRInform Thyroid panel, which consists of 17 of the most common and well described mutations including BRAF, RAS, RET/PTC, and PAX8/PPARγ,⁷ and Veracyte (San Francisco, CA) offers a 148 gene expression classifier known as Afirma. In his keynote lecture, Dr. Nikiforov eloquently outlined the evolution of these tests and the differences between the tests that guide their application. The Asuragen panel has high specificity and high positive predictive value whereas Veracyte’s Afirma has high sensitivity and high negative predictive value.⁸ He also described the future direction molecular testing is heading with the next generation sequencing machines capable of efficient, fast, and low-cost targeted sequencing of most known mutations.⁹ Whole genome sequencing is even becoming possible, although still expensive and impractical. Clearly, these techniques have the potential to improve our diagnostic abilities with indeterminate nodules, however, the practical application of this information and the issues of cost still remain to be determined.¹⁰,¹¹

One welcome trend seen readily in the early panel discussions was a hesitancy to biopsy small nodules (<1 cm) unless highly suspicious for malignancy. No doubt this reflects the growing realization and acceptance of the indolent nature of papillary thyroid microcarcinoma combined with improvements in our ability to follow thyroid nodules.¹² Even for larger tumors treated with thyroid lobectomy, there may not be much to be gained by empiric completion thyroidectomy as the resolution and availability of ultrasound has improved.¹³ This reflects a trend evident throughout the conference for tailoring care to the individual patient. It is not limited to papillary and follicular thyroid cancer, but also evident for medullary thyroid cancer, in which it was suggested that calcitonin levels be used to guide the extent or lack thereof of neck dissection. The most radical of these notions is observation of patients with known papillary thyroid cancer, as Dr. Ito has done in Japan with a group of patients with micropapillary thyroid cancer.¹⁴ It is not hard to justify observation in an older patient with multiple comorbidities whose chances of dying from thyroid cancer are extremely remote; however, in younger patients, cancer observation will need more time for acceptance, especially in western countries. Nevertheless, Dr. Ito has clearly demonstrated this can be done safely with close observation in Japan and it is now being done very selectively in certain centers in North America.

Similarly, as the sensitivity of our tools for uncovering recurrent or persistent disease has improved, we have also realized the limitations of surgical therapy for low-volume disease. This has opened the way for investigations.
into alternative treatments for recurrent disease demonstrated at the Congress, such as percutaneous image-guided alcohol, laser, or radiofrequency ablation.\textsuperscript{15–17} There is also a growing experience of observation of proven small volume persistent disease.\textsuperscript{18} More longitudinal studies are necessary to provide evidence for this strategy.

As surgeons made up the majority of the delegates and faculty at the Congress, there was no shortage of discussion and argument on the particulars of surgical technique. The pre-Congress activities included a well-attended live-animal course on minimally invasive video-assisted thyroidectomy led by Dr. Miccoli. There is growing international interest and experience in this technique led by the Italian groups.\textsuperscript{19} Similarly, the technique and role of robotic thyroidectomy is being further refined and the latest data was presented at proctored sessions at the Congress. There is still hesitancy in North America for widespread availability of this modality based on value added relative to conventional surgery. The technique, although done in selected enclaves in North America and Asia, has not achieved widespread acceptance.\textsuperscript{20} There is certainly a small demand for this procedure in patients who wish to minimize neck scarring.

The bulk of the discussions on surgical technique, however, centered on specifics of conventional open thyroid surgery. This included issues with growing consensus, such as the importance of identification of the external branch of the superior laryngeal nerve\textsuperscript{27} or the option for division of the sternothyroid muscle for improved exposure without significant consequence to postoperative voice quality.\textsuperscript{22} Neural monitoring has gained more widespread acceptance and recent monitoring guidelines were reviewed by Congress faculty in focused sessions.\textsuperscript{23,24} Its role, especially in revision or otherwise difficult surgery, was recognized. There is also growing recognition of the role and importance of laryngeal examination around the time of thyroid cancer surgery and a special laryngeal examination session was held and was very well attended. During this session, the recently published Voice Optimization Guidelines during Thyroid Surgery of the American Academy of Otolaryngology were extensively reviewed.\textsuperscript{25} There was recognition of Dr. Miyachi’s work in understanding recurrent laryngeal nerve injury and refining an algorithm for its management.\textsuperscript{26} With complete division of the nerve, he advocates primary repair and then, if unfeasible, anastomosis of the ansa cervicalis to the recurrent nerve remnant. These 2 maneuvers seem to provide the best voice outcomes.

There is still no universal agreement on the application of prophylactic central compartment dissection. The oncologic community remains divided as to the indications and the only hope to solve this dilemma is a prospective study that clearly shows an outcome advantage to central dissection in the ostensible node-negative neck. For now, taking account of the individual patient’s risk factors was advocated in guiding the decision regarding prophylactic neck dissection.\textsuperscript{27,28}

With respect to medullary thyroid cancer, the discipline welcomes the establishment of guidelines of the American Thyroid Association.\textsuperscript{20} A cogent set of guiding principles now exists for classifying relative severity of disease in a codon-specific manner, how to investigate medullary thyroid cancer, how to follow the disease, and the surgical management. Of special note are the recommendations to be less aggressive in managing metastatic neck disease, although German guidelines still advocate a more extensive and comprehensive management philosophy in the approach to the neck in patients, albeit guided by calcitonin levels.\textsuperscript{30}

As stated, this was a multidisciplinary conference and it included the latest updates on radiation and systemic treatments. Clearly apparent are trends in more selective radioactive iodine administration and use of lower doses, although there seems to be little consensus on the optimal dose.\textsuperscript{31} Nevertheless, there is a huge shift to selectivity, which is a vast departure from a few decades ago in which almost every patient with follicular-derived thyroid cancer received radioactive iodine.

More striking is the plethora of targeted agents now available for the systemic treatment of aggressive well-differentiated thyroid cancer and medullary thyroid cancer.\textsuperscript{25} The accelerated development of these agents reflects the explosion in targeted agents seen throughout oncology. The vascular endothelial growth factor receptor and tyrosine kinase inhibitors available for thyroid cancer are agents used for other malignancies but are particularly suitable for aggressive well-differentiated thyroid cancer for which cytotoxic chemotherapeutic agents have traditionally not been felt to prolong survival. Interestingly, there has been development of targeted agents specifically for medullary thyroid cancer. These agents show a higher degree of activity in these diseases and are clearly at the forefront of research efforts.

The overriding theme of the Congress was undeniably the concept of personalized medicine. The final message in all keynote lectures and panels was the need to tailor our diagnostic and therapeutic approach to the patient in front of us. With the information now available to us, we can no longer place patients into simple algorithms. We must weigh risk factors, comorbidities, imaging, cytologic, psychosocial, and possibly genetic information into developing a plan for treatment or observation. Even more importantly, we must consider patient preferences in guiding treatment options and include the patient in the final decision-making. This is equally important in follow-up and treatment for possible recurrence. In addition, the overall management of thyroid cancer should be done in a multidisciplinary fashion in centers that have high volume to allow the best overall outcomes for these patients.\textsuperscript{33}

There was a significant desire on behalf of the delegates to make the World Congress on Thyroid Cancer an event that should happen every 4 years to provide a platform for the exchange of ideas to allow the management of this disease to go forward in a multidisciplinary and uniform way.

REFERENCES


