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Transatlantic Editorial: thoracic surgeons need recognition of competence in thoracic oncology

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Throughout Europe and North America, the core substance of thoracic surgical practice is represented by oncological operations, which require accurate decision making within a compulsory context of multidisciplinary cooperation. Although the field of thoracic oncology has led to the emergence of dedicated scientific societies such as the International Association for the Study of Lung Cancer (IASLC), interdisciplinary conferences such as the European Lung Cancer Conference (ELCC) and a dedicated *Journal of Thoracic Oncology*, there is to this date no officially recognized specialty named 'thoracic oncology' in any country on either side of the Atlantic Ocean.

Thoracic oncology includes on its surgical wing the operative care of patients with lung cancer, pulmonary or pleural metastases from other primary tumours, chest wall tumours, mediastinal tumours and pleural mesothelioma. According to local traditions, thoracic surgeons may treat oesophageal cancer in several institutions but so might abdominal and foregut surgeons. For the majority of patients, the surgical resection remains the cornerstone for long-term survival; nonetheless, thoracic surgeons should demonstrate competence in the roles of adjuvant, neoadjuvant or alternative treatment modalities; thorough knowledge of the natural history of the disease, diagnostic procedures, staging modalities, principles of oncological surgery and integration of multimodality approaches will accordingly have an impact on patient care, oncological outcomes and quality of life [1–3].

WHY DO THORACIC SURGEONS NEED TRAINING AND CERTIFICATION IN THORACIC ONCOLOGY?

The European perspective

The professional perimeter of thoracic surgeons has considerably evolved over the past 2–3 decades, and it has been emancipated

from a mixed practice together with cardiovascular or general surgery and moved towards a monospecialty. Several studies have demonstrated that both specialization in thoracic surgery and greater patient volume improve outcome determinants at short-term and long-term evaluations [4–9]. Clearly, for the benefit of our patients and our practices, thoracic surgeons must possess in-depth knowledge of thoracic diseases and non-surgical treatments, including innovative medications. This knowledge will help refine multimodality treatment strategies in locally advanced thoracic malignancies and yield critical contributions to the development of clinical trials in thoracic oncology.

Thoracic oncology has evolved towards a specialized multidisciplinary activity, which is increasingly subjected to regulations, accreditation and quality control [10]. This activity translates in clinical practice into institutional multidisciplinary tumour (MDT) boards, where thoracic surgeons are key players along with pulmonary physicians, medical oncologists and radiation oncologists [11]. Lung cancer surgery is predominantly provided by thoracic surgeons in 26 countries [12]. In several European countries, such as France or the UK, e.g. MDT board discussion of any new diagnosis of cancer has become a legal obligation. In Belgium, laws have been developed to regulate cancer care. Seven oncology-specific laws have been put in place, the first defining the multidisciplinary oncology consultation and allowing reimbursement for such care. Almost all innovative and expensive drugs are reimbursed only if all members of the multidisciplinary team agree that these would benefit an individual patient [12]. In many other countries, the MDT board is strongly recommended but not compulsory [12]. The MDT board discussions are not only limited to treatment but also include diagnostic problems, follow-up and recurrent diseases. In addition, 'classic' MDT boards are increasingly supplemented by molecular biology MDT boards. We may speculate that during the coming years, the MDT board will become an obligation in most countries; while

improving patient care and outcomes, the Belgian example demonstrates that it is also a way to control health care expenses.

Despite these political and legal directives in the European community, there is so far no specialty diploma entitled 'thoracic oncology'. There is neither a harmonized approach nor a pan-European consensus for training, certification, continuous professional development and accreditation for thoracic oncologists. For the time being, thoracic oncologists will be thoracic surgeons, pulmonary physicians, medical oncologists and radiation oncologists who have trained according to a traditional pathway and who have developed a special interest for thoracic malignancies; their competence relies on their professional experiences and self-initiated learning using several educational media such as conferences and seminars, specialized journals or e-learning.

This issue is particularly critical for thoracic surgeons, for whom treatment of thoracic malignancies represents approximately 50% of their workloads. Recognition of their competence in oncology is mandated in terms of liability, quality of patient care and authority on MDT boards. For the younger colleagues in specialty training, certification of competence in oncology, in addition to their specialist diploma, would certainly favour job application and European mobility.

The US perspective

The need for thoracic oncology training in the USA is primarily motivated by 2 factors: (i) recognition that care delivery for patients with thoracic malignancies is rapidly becoming more complex, requiring a disease-based team approach to care and (ii) a belief that those who possess knowledge, skills, attitudes and experience that facilitate a disease-based team approach to care will achieve the best outcomes. This perspective is evident in practice guideline recommendations by organizations such as the National Comprehensive Cancer Network (NCCN) and the American College of Chest Physicians (ACCP) [13, 14]. In line with the European perspective, we believe training in thoracic oncology in the USA would position a thoracic surgeon to function effectively within a multidisciplinary disease-based team as well as lead it. Although most life-prolonging therapies for advanced or metastatic thoracic malignancies are rendered by medical oncologists, thoracic surgeons must be intimately familiar with these therapies as our specialty is increasingly involved with transdisciplinary interaction and discovering new entities such as redo biopsy or resection of chemoresistant or oligoprogressive disease [15].

Other motivating factors for pursuing thoracic oncology training in Europe—such as law, regulation and policy, accreditation, certification, credentialing, privileging and quality control—are less compelling arguments for pursuing thoracic oncology training in the USA. The USA has no laws mandating multidisciplinary disease-based care. Although there is a regulatory environment governing the reimbursement of care, these regulations do not mandate multidisciplinary disease-based care delivery for cancer patients. Furthermore, the reimbursement structure within the USA remains fee-for-service to a great extent. In the absence of reimbursement for participation in multidisciplinary disease-based care, there are no direct financial incentives that promote surgeon participation. Surgeons may participate if they perceive an ability to drive referral patterns. So long as the USA continues to move towards accountable care models of health care delivery with incentives for teamwork and care coordination, there will be a growing case for improving thoracic oncology training in the USA [16].

Hospital accreditation is predominantly assessed in terms of patient safety relative to established standards and evidence of continuous quality improvement initiatives. Even hospitals recognized as a Comprehensive Cancer Center by the National Cancer Institute (NCI) do not have a mandate for multidisciplinary team-based care. Certification by the American Board of Thoracic Surgery (ABTS) requires knowledge of thoracic oncological principles but not above and beyond what is already included in the nationwide thoracic surgical curriculum. Credentialing and privileging are institution-specific processes that ultimately recognize a surgeon as being competent and qualified [17]. To the best of our knowledge, there are no institutions that require training in thoracic oncology for credentialing and privileging. Quality improvement efforts within the USA have largely been procedure specific.

For example, a clinical registry sponsored by The Society of Thoracic Surgeons (STS) provides surgeons, hospitals and other stakeholders feedback about institutional performance in terms of safety measure (e.g. morbidity and mortality). Currently, the registry does not provide feedback on process or structural quality measures (e.g. participation in multidisciplinary disease-based teams) or oncological outcomes (e.g. long-term survival and health-related quality of life). There is another consortium of professional organizations in the USA that can influence cancer care. The Commission on Cancer (CoC), a programme of the American College of Surgeons, was developed to improve survival and quality of life by setting standards for cancer care across the USA. The CoC collects standardized data from CoC-accredited cancer centres (of which there are approximately 1500 in the USA) to measure quality and comprehensive cancer care delivery [18]. The attendance of multidisciplinary thoracic oncology tumour boards is tracked as a quality measure, but there is no standard for participation by surgical trainees.

In recent years, it has become more clear that payers in the USA are moving in the direction of reimbursement based on quality metrics. Although that is not the current paradigm, it may become more relevant in the coming years; cancer care services deemed to be suboptimal may not be reimbursable, and institutions failing to meet criteria as centres of excellence for cancer care may find obstacles in receiving full reimbursement.

The current context in which health care is delivered in the USA may result in fewer motivating factors for pursuing thoracic oncological training compared with Europe. However, although the number of motivating reasons for dedicated thoracic oncological surgical training may differ around the globe, it is clear that there exists ample compelling overlapping transatlantic reasons to justify its pursuit.

WHICH KIND OF ONCOLOGICAL TRAINING IS OFFERED SO FAR?

The European perspective

In European countries, the oncological education of thoracic surgical trainees is not formalized. However, participation in MDT boards is considered a valuable learning resource [19]. Outside of large academic units, oncological training is most often self-guided and based on available textbooks and articles in specialized journals. Most thoracic surgical conferences offer scientific sessions and postgraduate courses in oncology issues. In addition, scientific societies such as the European Society of Thoracic Surgeons (ESTS), European Respiratory Society (ERS), European

Society of Medical Oncology (ESMO), American Association for Thoracic Surgery (AATS), The Society of Thoracic Surgeons (STS), American Society for Clinical Oncology (ASCO) and IASLC, as well as leading cancer centres, offer specific courses focusing on thoracic oncology in the multidisciplinary context. The same learning resources address continued professional development and offer continuing medical education credit, although regulations regarding continued professional development considerably differ among the European countries. In summary, there is lack of definition in training objectives, syllabus, curriculum and learning outcome measurements for both initial specialty training and continued professional development.

The US perspective

Thoracic surgical trainees receive the bulk of their thoracic oncological education through a national curriculum initiated by the Thoracic Surgery Directors Association (TSDA) with support from the Joint Council on Thoracic Surgery Education (JCTSE), now a workforce of STS. This curriculum has evolved over time, initially consisting of an outline of educational objectives, and now including an expansive collection of materials provided by a Web-based learning management system. The curriculum is not focused exclusively on oncology; rather, it covers the entire spectrum of non-cardiac thoracic, adult cardiac and congenital heart surgery. Nonetheless, the existing national curriculum covers a majority of the modules identified by the Harmonized Education in Respiratory Medicine for European Specialists (HERMES) project [20]—such as aetiology and epidemiology, clinical presentation, use of diagnostics, staging, prognostic factors, principles of thoracic surgery and management of surgical complications, combined modality therapies, management of special subpopulations and treatment evaluation and follow-up.

Although a national curriculum exists, there is likely a variation in the magnitude of focused thoracic oncological education across programmes. For instance, training programmes led by or affiliated with stand-alone cancer institutions—such as Memorial Sloan-Kettering Cancer Center and University of Texas MD Anderson Cancer Center—tend to structure their resident rotations, conferences and guest lecturers with a heavier emphasis on the oncological aspects of thoracic surgery. Of note, the ABTS mandates that thoracic surgery trainees attend a minimum of 20 multidisciplinary patient management conferences throughout their training time, although these are not specific to cancer teams [21]. It is conceivable that this limit may be further refined to include increased participation in thoracic oncology conferences by trainees enrolled in a thoracic track. Surgeons in practice also have opportunities to pursue focused thoracic oncological education through continuing medical education programmes sponsored by professional organizations. Examples include the NCCN-sponsored Seattle Cancer Care Alliance Thoracic Oncology Symposium [22]; the ACCP Engaging an Interdisciplinary Team for NSCLC Diagnosis, Personalized Assessment and Treatment (GAIN) curriculum [23] and ASCO University's online resource for team-based care in oncology [24, 25].

WHICH INITIATIVES ARE PROCEEDING?

The European perspective

Disparities in training issues throughout Europe—also apply to respiratory medicine, thoracic surgery and other specialties—led

the ERS to initiate an ambitious program since 2005 under the acronym HERMES. The initial motivation was to create a harmonized syllabus and training curriculum applicable in all European countries, with a certification delivered to (i) recognize a high standard of training and (ii) favour mobility of specialist doctors across Europe. The first task force was dedicated to adult pulmonary medicine [26, 27]. Over the years, this examination has been used as the knowledge part of the exit examination after specialty training in Switzerland and also used as a recognized instrument of training assessment in the Netherlands, Ireland, Germany and Portugal. The universal success of this first project encouraged the ERS to extend its experience to other fields, encompassing subspecialties in respiratory medicine (intensive care, paediatric pulmonology, sleep medicine and infectious diseases), thoracic surgery in collaboration with the ESTS and, finally, the multidisciplinary field of thoracic oncology federating respiratory medicine, medical and radiation oncology and thoracic surgery.

A HERMES task force group is composed of recognized specialists with an even distribution between larger and smaller European countries, supported by ERS staff and education scientists. The first step of any project is to establish a consensus-based syllabus: a first draft designed by the task force working group is validated through 2 or 3 Delphi surveys run both with highly specialized experts and with community-based doctors to obtain a most transversal overview of opinions in a pan-European dynamic. The task force working group validates the final syllabus. The next step is a more detailed description of the learning curriculum. The curriculum is defined as a sophisticated blend of educational strategies, course content, learning outcomes, educational experiences and assessment while taking into account the educational environment and the individual trainee's learning style, personal timetable and programme of work [28]. The curriculum needs to address several points: when and how to learn, the minimal exposure needed, the learning outcomes and evaluating the learning process. The support of education scientists and methodologists guarantees that an appropriate educational strategy, incorporating modern concepts of medical education, is eventually designed. Accordingly, the exit-of-training examination requires appropriate selection of evaluation tools and a proper certification process.

The idea to create a multidisciplinary certification in thoracic oncology originated from the lack of official recognition in thoracic oncology, even though lung cancer is the second most frequent cancer on diagnosis and the first cause of cancer mortality [29]. Moreover, thoracic oncology addresses more rare diseases such as mediastinal tumours and mesothelioma. The HERMES task force group believes that a common certification, valuable for all specialists participating in dedicated care for thoracic malignancies, would be of added value for the specialist diploma. As such, the syllabus for thoracic oncology was published in 2011 [20] and the curriculum in 2016 [30]. Although the first, laudable goal was to harmonize standards and quality of care for patients throughout Europe, certification in thoracic oncology should also protect colleagues in terms of liability and label qualification in the view of job application and mobility.

As mentioned, the current task force federates 4 European scientific societies—ERS, ESMO, ESTRO and ESTS—which are the main stakeholders caring for patients with thoracic malignancies. In this task force, the concept of a transdisciplinary approach was introduced, similar to what happens in real clinical practice dealing with the management of patients with thoracic cancer.

Although all stakeholders had the same objective, which is the patient's best care, knowledge, tools and skills quite differ among specialists taking the same certificate. In this respect, the task force identified the overlapping area of the MDT board as the common denominator and agreed that the final certification recognizes the ability and competence to lead an MDT board and is designed for doctors who have already graduated in one of the 4 fundamental specialties. For the thoracic surgeon, this certification should allow equal access to MDT board leadership. A thoracic oncology HERMES certification represents an added value to the national specialist diploma and to the certification as fellow of the European Board of Thoracic Surgery (FEBTS).

The US perspective

There are presently no initiatives in the USA that we are aware of that aim to redefine how thoracic oncology is taught to trainees and practicing surgeons. The national curriculum remains committed to providing the highest level of oncology training embedded within the broader curriculum of cardiothoracic surgery for trainees. Any national effort to redefine thoracic oncology education at the trainee level would likely be incorporated into the current curricular model. However, it is also clear that additional training for those in practice and at the continuing medical education level is imperative to provide optimal oncological care, as the status of thoracic oncology is continuously changing at a rapid pace of discovery.

FUTURE DIRECTIONS

As far as the curriculum description including examination tools and assessment is completed, there is no impediment for the stakeholding societies to organize an examination open to any graduate in the 4 core specialties [30]. However, in the absence of any official recognition, this certification would simply offer a confidential quality label. The next step on the European continent is to make a claim for UEMS [European Union of Medical Specialists (www.uems.net)] accreditation; as such, we are currently building up a multidisciplinary joint committee at UEMS [31].

Regarding the North American continent, the HERMES curriculum description might be a tool for discussion between representatives of the 4 core specialty boards, with the ambition to create a North American labelling in thoracic oncology, adding a recognized competence to the specialty diploma. Members of the task force would certainly be volunteering to help in this process.

There is an opportunity to expand the current thoracic oncology curriculum in the USA. Specifically, there are several modules identified by the HERMES project that are absent from the current US curriculum—including general principles of the biology of thoracic cancers, principles of radiation and systemic therapy, side effects of systemic therapy and their management, supportive care, methodologies for clinical practice and research, ethics, cancer-related immunology and quality and economic considerations in lung cancer treatment. A commitment to thoracic oncology training may also include increasing the minimum number of multidisciplinary oncology conferences that trainees attend on their rotations [19].

Two other opportunities exist for both sides of the Atlantic Ocean. The first opportunity is to add a module specifically addressing training and education for trainees who seek to work effectively as part of a multidisciplinary disease-based team. Recently, ASCO and NCI partnered to host a workshop on teams in cancer care delivery [24, 25]. Some of the findings from that workshop have been published in the November 2016 issue of the *Journal of Oncology Practice* [32]. This collaboration recognizes the complexity of working in teams and provides guidance on effective teamwork and communication. The second opportunity is to expand the inclusion of and obtain input from other key specialty providers involved in thoracic oncological care. Specifically, the input of pathology, radiology and gastroenterology would be important additions to the HERMES project in Europe and education programmes in the USA.

CONCLUSION

Contemporary interdisciplinary and quality requirements lay claim to a label as thoracic oncologist for any surgeon or physician implicated in diagnosis and treatment of thoracic malignancies. The detailed proposal by a dedicated HERMES task force curriculum, published in *Breathe*, is a source of recommendation designed for both trainees and trainers that may be adapted to the cultural and legal environment of countries on either side of the Atlantic Ocean [30]. This certification should be easily accessible to thoracic surgeons, because most items can be addressed during the training period. The curriculum may also guide continuous professional development. To guarantee quality of training, the task force group should also define requirements for accreditation of training programmes. Because the future of thoracic oncology is increasingly marked by interdisciplinary cooperation, an official labelling of thoracic surgeons is a step forward to their emancipation and recognition as full partners and potential leaders of MDT groups.

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