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Editorial

Rare cancers: A network for better care

Rare cancers, corresponding to 24% of all cancers cases [1], pose formidable challenges in terms of inequalities in oncologic outcomes. 5-year survival rate in Europe is 47% for patients with rare cancers compared to 67% for those with common cancers [2]. This disadvantage persists, even after excluding common cancers with good prognosis (prostate, breast, skin cancer); possible factors explaining these differences are: the biology of the diseases, inappropriate diagnosis and treatment, scarceness of effective therapies, or lack of evidence-based treatment guidelines.

However, the provision of ineffective treatments is more prevalent is healthcare is delivered by institutions with limited expertise, suboptimal multidisciplinary organization and/or low case volumes [3]. Large geographical survival differences for all rare cancers together have been reported across European countries: low investment in health care may explain such significant variations in their survival.

There is a wide consensus among rare cancer experts that patients with rare cancers should be treated at centers of reference from the very beginning of their clinical history, possibly from the time of the biopsy. The inexperience of non-specialized pathologists with the multitude and complexity of rare tumors is not the only significant factor accounting for diagnosis uncertainties [4]. The central question arising is whether all rare cancer cases should be reviewed in a specialized center: centralized pathological review, rapid and efficient assistance with access to molecular biology analysis seems of vital importance in rare tumors [5]. More efficient information and education among pathologists is also deemed essential to ensure accurate diagnosis and grading. Several requirements must be met to achieve recruitment of all second opinion requests; cancer network participation can facilitate the involvement of pathologists and ensure exhaustiveness.

Approximately 65% of patients affected by solid rare cancers are surgically treated and only 30% in combination with radio or chemotherapy [6]. Rare cancers are almost ubiquitous, affecting every part of the human body: therefore, a few surgical experts is rare tumors might deal with some of them, while numerous surgeons will deal with others, more or less occasionally, depending on the anatomical district they specialize in. The multidisciplinary clinical decision on how to plan treatment at the very beginning of the clinical history and the quality of the initial surgical intervention, largely determines patients' outcomes [7]. It is worth reminding how the surgical procedure for rare cancers may not necessarily be more demanding than any average operation, from a technical point of view, but the lack of cultural knowledge about the disease is likely to lead to inappropriateness even when there is no major technical challenge.

For all these reasons, there is no doubt that the centralization of care is crucial in optimizing outcomes. However, the identification of centers of reference may be a frustrating experience for rare cancer patients and it may also be challenging for general practitioners. A valuable alternative is the creation of networks, i.e. “reference networks”, “networks of excellence” and such alike. The main criterion for a reference institution, above all for a surgical facility, is a “volume” high enough to ensure medical expertise, technical appropriateness and access to clinical trials.

In Europe the most valuable opportunity to improve the care of rare cancers comes from a collaboration with the EU Reference Networks (ERN). ERNs are virtual networks involving healthcare providers across Europe; they represent the EU instrument through which the right of EU patients to be treated across EU countries is sanctioned. Despite some limitations, one of the main added values of the Directive lies in the notion of ERN. The decisions that the EU Commission will take, over the next few years, on how to implement the ERNs will be crucially important in determining their success.

A broad international collaboration in all research efforts on rare cancers is also crucial, and so is the role of population based cancers registries in the retrieving “real world” information. On the other hand, medical research, is challenged by several issues: the expertise is scarce, trials are impossible at a national level due to the low prevalence of these conditions, funding is limited, pharmaceutical industries have little incentive to develop drugs, patient accrual to trials is frequently prolonged. Moreover, there is no consensus about the most efficient clinical trial design methodology and national regulatory requirements significantly impair the ability to conduct international trials. RCTs are difficult to activate, and even more difficult to complete, for rare or molecularly-defined cancers.

Several innovative approaches have been suggested: for multimodality organ site-specific treatments (including surgery, pharmacological treatments and/or radiation therapy) open-ended single-arm trials (or carefully performed prospective registry studies) are most likely to lead to new treatment protocols. The challenge for the research on rare cancers is to better explore all datasets, including tumor biology besides clinical information: it has become progressively easier to collect vast amounts of good quality, disparate personal-health and population-related information on a global scale; the real challenge will be to retrieve, store, federate, integrate, share, interpret and transform these extensive heterogeneous data into scalable and reliable, clinically actionable resources. An effective international collaboration, which is mandatory to reach such objectives, is presently ongoing

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thanks to various initiatives. Despite the numerous methodological difficulties, we are now able to foresee new ways to overcome old hurdles.

The present special issue of EJSO collects expert opinions on the ongoing research and treatment options. Several examples of clinical practice (i.e. Soft Tissue Sarcomas, Head and Neck, Neuroendocrine Pancreatic Tumors, Gastrointestinal Neuroendocrine Tumors, Urogenital male, Genital, Thymomas and Thoracic Mesotheliomas) represent the state of the art in the field, while highlighting unanswered questions. The epidemiological information is retrieved from population-based cancer registries which largely contributed data to the RARECAREnet project. RARECARE is the most effective instrument to describe rare cancers in Europe.

Conflicts of interest statement

The authors do not have any conflicts of interest to declare.

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