A Short Reflection on Multidisciplinary Approaches to Women's Health After Radiotherapy

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Abstract Rehabilitation care after pelvic radiotherapy toxicity is a turning point. Because of the difficulties in accessing rehabilitation, care services during the pandemic may impact physical functioning, increasing disability. This issue is of utmost importance in the management of radiation toxicity, especially in women treated for gynecological tumors. Indeed, the post-radiation toxicity in long-term

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survivors of gynecological cancers often compromises the patient's well-being, even after she is declared free from the disease. This commentary aims to highlight the issues related to women's health after radiotherapy, the call for a multidisciplinary perspective to support female patients' well-being and try to provide recommendations to mitigate the consequences of COVID-19 impacts on gynecological rehabilitation. Therapeutic approaches require a continuous and multidisciplinary approach that involves the oncologists (radiation, medical, and gynecological oncologists) together with other figures, such as pelvic floor rehabilitation experts, physiatrists, physiotherapists, psycho-oncologists, and sexologists. On top of that, treatment and rehabilitation require intense continuous collaboration between the patient and the professionals in the chair. Looking beyond the pandemic, this short reflection opens up the topic of well-being for female patients and how a multidisciplinary approach can support recovery reducing physical and psychological disability. There is a call for guidelines for the management of the pelvic rehabilitation of long-term survivors. Strong leadership for the inclusion of this topic in the residency programs in the field of oncology is needed to ensure high-value care and reduce long-term sequelae.

Keywords Radiotherapy · Female Health · Female Well-being · Multidisciplinary approaches · Gynecological tumors

1 Introduction

Women's health is a relevant topic in today's scenario, as women have often be seen as fragile patients (Bednarova et al. 2022; Biancuzzi et al. 2020; Dal Mas et al. 2020), needing to cope with their disease and their home and work responsibilities at the same time. In oncology, recent experiences have reported the difficulties of female patients in their recovery and follow-up phases to find time to heal and carry on their rehabilitation treatments while, at the same time, going back to their everyday duties and roles as soon as possible (Cobianchi et al. 2022). At the same time, in oncology and in several oncological diseases, a multidisciplinary approach has proved to be the winning strategy in the entire patient's journey (Barcellini et al. 2022; Cobianchi et al. 2022; Dal Mas et al. 2020; Plate et al. 2018). Gynecological cancers and the following treatment options follow the very same approach and unwritten rules for patients.

Gender differences emerge. Indeed, despite the impact on the quality of life (QoL) of long-survivors and sexually active patients, the gynecological substructures have so far only slightly been included in the panel of organs at risk in the radiotherapy (RT) planning treatment, and no consensus still exists about their dose constraints (Delishaj et al. 2018). Although 60% of gynecological specialists investigate their patients' sexual disorders by interview, only about a third of these assess sexual satisfaction, pleasure, and/or any sex-related distress(Coady and Kennedy 2016). There are also few reports about rehabilitation and psychological methods to alleviate symptoms or guidelines to manage the psychological impact of damage from RT in the sexual life of long-surviving women (Barcellini et al. 2021). The most common late vulvar and vaginal toxicities reported by patients after pelvic RT,

with or without brachytherapy, are vulvodynia, vaginal dryness-atrophy, and stenosis.

The iatrogenic chronic vulvar pain, known as secondary vulvodynia, is defined based on pain location (localized, generalized, mixed), triggering situations (upon contact, spontaneous, or mixed), and duration of a symptom (intermittent or constant) (Bornstein et al. 2016). As it happens in chronic pain, post-actinic vulvodynia is associated with neurological changes that can determine persistent pain, even in the absence of acute damage. The psychological stress of vulvodynia negatively impacts the QoL of survivors, that often report feelings of shame, inadequacy, emotional distancing from the partner, and alteration in body image (Coady and Kennedy 2016). This situation often causes the patient to erroneously believe that sexual pain is caused by the previous oncological disease. The difficulty in the management of vulvodynia is due to patients' reticence, lack of knowledge of such pain, inadequate availability of strategies/tools for diagnosis and treatment, and limited knowledge translation (Dal Mas et al. 2020) among different health professionals leading to difficulty in developing multimodal management roadmaps.

Vaginal dryness is related to the iatrogenic mucosal atrophy after RT due to microvasculature's alteration, with capillary loss and impaired microcirculation in the connective tissue, which hampers fluid arriving at the surface (Delishaj et al. 2018; Kirchheiner et al. 2012). This syndrome occurs progressively over time, with the reduced presence of vaginal roughness, decreased blood supply of the squamous epithelium, an increase in vaginal pH, and the change in the vaginal maturation index (Cox and Panay 2019). The lack of lubrication, often reported by patients, has proved to be a psychological issue negatively impacting QoL. At two years after RT to experience grade ≥ 1 and ≥ 2 dryness, the actuarial probability seems to be 62% and 8%, respectively (Delishaj et al. 2018). However, this syndrome is still underestimated and undertreated, not only by the oncological patient but above all by healthcare personnel. Indeed, recent data suggest that although it is known that this syndrome is a consequence of an RT treatment, less than 50% of medical doctors face this problem with the patient, only 41% refer the patient to a gynecologist specialist, and only 35% recommend a specific treatment in relation to the symptom reported by the patient. This situation suggests the need for greater disclosure, among health professionals, on the symptoms, signs, and treatments of vulvovaginal atrophy to provide more adequate and rapid patient care (Kathrin Kirchheiner et al. 2014).

Last but not least, vaginal stenosis, one of the most studied late post-actinic toxicities, has an incidence overall from 2.5% to 88% and seems related to the treatment performed, the histology and site of the primitive tumor, the surgical approach performed, the total RT dose of, the dose/volume ratio at the level of the vaginal structures, and the possible use of topical supportive therapy during treatment (Delishaj et al. 2018; Laliscia et al. 2016).

2 Lessons Learnt from the Literature

Many radiation oncologists generally perform sexual health conversations in case of pelvic RT, and the literature shows that women prefer to get counseling on sexual functioning after completing the treatment (Hay et al. 2018). The main recommendations to patients at the end of RT delivered to the pelvis with or without vaginal endouterine brachytherapy are to resume sexual activity or to avoid the collapse of the vaginal walls with the use of vaginal dilators (Damast et al. 2012; Miles and Johnson 2014). Unfortunately, this approach is often poorly tolerated by women with low adherence and compliance. The resumption of sexual activity is often affected by pain and feelings of inadequacy, both inhibiting factors. Despite the emerging interest in oncological sexual health care and the well-known role of pelvic rehabilitation on the resumption of sexuality, physical treatments remain limited and poorly studied. A multicenter, prospective, and interventional study has recently shown that multimodal pelvic floor physical therapy is effective in treating dyspareunia, acting on psychosexual and pathophysiological mechanisms (Cyr et al. 2020). Pelvic floor alteration is involved in the vulvovaginal toxicity of patients showing an increased pelvic floor muscle tone and lower control and endurance, and a preventive rehabilitation approach on the pelvic floor before RT has proved to be effective in preserving muscle function regarding strength, activation, and incontinence (Sacomori et al. 2020) with potential improvements in symptoms and QoL. Therefore, prior to RT, it would be advisable to plan preparatory sessions (Brennen et al. 2020; Frawley et al. 2017), including:

- One verbal interview with the patient to assess her history and lifestyle, defying eventual needed corrections and interventions
- A pelvic perineal evaluation, where the tone, tropism, and voluntary activity of the pelvic floor will be assessed
- A set of tailored pelvic floor exercises to be planned
- Psychosexual counseling. Indeed, psychological factors should not be underestimated. A cancer diagnosis leads to negative stress. Stressful events affect the respiratory act and, consequently, the muscle tension of the pelvic floor, altering the health of the vaginal mucosa, and causing dryness and atrophy (Ayling and Ussher 2008; Ye et al. 2014).

It is essential for the therapeutic rehabilitation intervention that the patient gets aware and learns the different skills of the muscular area of the pelvic floor and performing the recommended exercises correctly, and following a tailored exercise therapy plan to be carried on at home may speed up the post-RT recovery times (Cyr et al. 2020). Every patient should get a tailored approach, verifying that she should be able to activate and relax the pelvic floor muscles correctly and effectively. It is crucial for the patient to understand the relevance of self-treatment to be continued at home with frequent contact with the therapist that ensured a close follow-up to target all the aspects of sexual function (Bo et al. 2014). Such activity is crucial to facilitate the achievement of therapeutic goals.

3 The Multidisciplinary Perspective

Post-actinic vulvovaginal toxicity in long-term survivors of gynecological cancers often compromises the patient's well-being, even after she is declared free from the disease. The long-term consequences of radiotherapy treatment can, in fact, impact not only the sexual sphere but on the physical well-being of the woman in everyday life. Therefore, reducing the dose to the healthy organs surrounding the RT target is a clinical goal in RT planning, and modern radiation techniques, such as hadrontherapy are promising. The recommended therapeutic approaches, in the acute but also the follow-up phases, require a continuous and multidisciplinary interaction among various healthcare professionals. Such professionals include not only the oncologists (radiation oncologists, medical oncologists, and gynecological oncologists) but also pelvic floor rehabilitation experts, physiatrists, physiotherapists, psycho-oncologists, and sexologists.

The continuous and multidisciplinary interaction among such professionals requires them to develop shared knowledge about the subject, but more importantly, adequate knowledge translation tools and techniques must be put in place to facilitate the dialogue and the creation of new knowledge on the topic. The knowledge exchange among the various professionals, concerning the clinical but also psychological issues, and all the possible treatment alternatives, stand as key components to ensure the best outcome for the patient, improving the QoL and psychophysical well-being. The picture is even more relevant when severe psychological concerns arise, which often lead the patient not to open up even with the healthcare professionals regarding these issues. Such pain or physical discomfort can often be not too intense, but, in the long run, physically and psychologically debilitating.

Moreover, the prospects for treatment and rehabilitation require intense and continuous collaboration between the patient and the professionals in charge. While the healthcare professional should ensure that the technical and clinical knowledge is correctly translated to the patient, listening to the patient's needs and concerns. Narrative techniques and the use of soft skills like empathy and kindness (Dal Mas et al. 2021) should support the communication between the patient and the clinical professional.

Inpatient services are not enough. The engagement of the woman involved stands as a central element of the whole treatment. Such an engagement is considered not only emotional but also in everyday life. As an example, the patient should carry on parts of the recommended practices and exercises at home, and use some particular devices and/or products, including non-pharmaceutical ones. These practices recall the need to engage in co-production processes (Biancuzzi et al. 2020; Elwyn et al. 2020), in which the patient becomes a fundamental actor in her well-being and the success of treatment and rehabilitation. While such practices are not standardized, and should be tailored to the patient's wishes, a co-learning approach then emerges (Miceli et al. 2022). Clinicians and patients should find the best way to co-design, co-assess, and co-deliver the care, in a continuous learning approach. Technology and e-health, especially through mobile applications, may represent an aid for

patients to co-produce their care and for clinicians to check on their progress, collecting at the same time meaningful data for further developments and learning.

Such co-production initiatives, and the need to treat the whole matter in a multidisciplinary way, make it necessary to study tailored practices, including communication and dissemination of relevant information to early-diagnosed patients, patients under RT treatment, and in the follow-up phase. There is a call for all the various healthcare professionals involved to develop and adopt suitable tools (clinical, but also from a communication perspective) to ensure the best options for their patients.

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