

Editorial

Strategic Approaches in Management of Early-Stage Cervical Cancer: A Comprehensive Editorial

Tullio Golia D'Augè¹, Violante Di Donato¹, Andrea Giannini^{2,*}

¹Department of Maternal and Child Health and Urological Sciences, Sapienza University of Rome, Policlinico Umberto I, 00161 Rome, Italy

²Department of Medical Surgical Sciences and Translational Medicine, Sapienza University, 00189 Rome, Italy

*Correspondence: andrea.giannini@uniroma1.it (Andrea Giannini)

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Cervical cancer has a high incidence and mortality in developing countries due to the lack of structured screening programs. Human papillomavirus (HPV) infection and its persistence represent the primary risk factors for cervical cancer, while, the concurrent infection with human immunodeficiency virus (HIV) elevates the risk of developing cervical cancer by a factor of six [1].

Prophylactic vaccination, and more recently adjuvant vaccination, significantly reduce the risk of cervical cancer but do not eliminate it [2]. Screening consists of performing Papanicolaou tests (pap test) or HPV tests, followed by colposcopy with targeted biopsy in case of positive results. Early diagnosis is critical, as the stage at diagnosis is one of the primary prognostic factors. Early-stage cervical cancers according to the International Federation of Gynecology and Obstetrics (FIGO) 2018 classification include stages IA1-IB2 and IIA1 [3]. In this case, premenopausal patients and those who desire to maintain fertility, after careful consultation and tumor histopathological evaluation (tumors <2 cm, without deep stromal infiltration, without lymphovascular invasion (LVSI), and with negative lymph nodes), may benefit from a fertility-sparing treatment that includes conization or simple trachelectomy with lymph node status assessment [4–6]. To date, surgery is the therapeutic gold standard, but in selected cases, adjuvant therapies could improve the prognosis [7]. For patients at high risk of relapse, such as those with LVSI, deep stromal infiltration, or positive lymph nodes, concomitant radiochemotherapy may be considered, though it is not compatible with fertility-preserving treatment. In contrast, in younger patients desiring to preserve fertility, careful selection based on a thorough assessment of risk factors is essential. This approach requires close follow-up with regular clinical examinations and imaging [3,8,9], and carries a slightly higher risk of recurrence compared to more radical surgical options, though the risk remains low.

Lymph node assessment is a critical procedure in determining treatment, as lymph node metastasis is prognostic factor that necessitates adjuvant therapies. Historically, systematic pelvic lymphadenectomy was the standard method for evaluating lymph node status. However, in re-

cent years, sentinel lymph node biopsy has gained popularity due to its lower incidence of side effects and post-operative complications [10–13].

Patients not eligible for conservative treatment were previously submitted to radical surgery, with the removal of the uterus, cervix, parametrium, upper third of the vagina and pelvic lymph node staging (systematic lymphadenectomy and/or sentinel lymph node biopsy) with or without bilateral salpingo-oophorectomy. Guidelines for the treatment of early-stage cervical cancer, however, are constantly evolving, secondary to advances in cancer research [3,14]. Recently, the publication of the SHAPE (Simple Hysterectomy and Pelvic Node Assessment) trial has revolutionized this approach, demonstrating that simple hysterectomy in patients with low-risk cervical cancer (lesions ≤2 cm and limited stromal invasion) guaranteed oncological outcomes comparable to radical surgery with statistically less frequent short and long-term urinary complications [15]. Additionally, minimally invasive approaches, such as laparoscopic and robotic-assisted radical hysterectomies have emerged as important treatment options, offering benefits such as reduced recovery time and shorter hospital stays. However, these techniques require a steep learning curve [16]. This complexity, coupled with declining numbers of radical hysterectomies due to early detection and vaccination programs, highlights the need for specialized training programs. These findings are driving a shift towards a more conservative approach for low-risk patients in order to enhance quality of life without compromising survival outcomes [2,7,14]. Multidisciplinary counseling involving oncologists, surgeons, psychologists, and fertility specialists is crucial to ensure patients fully understand their treatment options and the long-term implications of their decisions. Nevertheless, ongoing psychological support during follow-up is also important to help patients cope with anxiety related to potential recurrence and the side effects of treatment [17].

Future research is likely to focus on identifying new prognostic and predictive biomarkers to further personalize treatment and minimize patient exposure to unnecessary or overly aggressive therapies. Additionally, the develop-



ment of targeted therapies, immunotherapies, and second-generation HPV vaccines may further improve outcomes for patients with cervical cancer.

In conclusion, the management of early-stage cervical cancer has advanced significantly over recent decades, driven by improvements in early diagnosis, surgical techniques, and adjuvant therapies.

However, ensuring equitable access to timely and high-quality care for all patients, regardless of their place of residence or socio-economic status, remains a significant challenge. The future of cervical cancer management will require a more personalized approach, with treatments increasingly tailored to the molecular and genetic profiles of the tumor. This will further enhance patient survival and improve quality of life.

Author Contributions

VDD designed the study. TGD performed the research. AG analyzed the data. TGD and AG wrote the manuscript. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript. All authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

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The authors declare no conflict of interest. Andrea Giannini and Violante Di Donato are serving as Guest editors of this journal. Andrea Giannini is also serving as one of the Editorial Board members of this journal. We declare that Andrea Giannini and Violante Di Donato had no involvement in the peer review of this article and has no access to information regarding its peer review. Full responsibility for the editorial process for this article was delegated to Michael H. Dahan and Yasuhiko Ebina.

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