Journal of Obstetrics, Gynecology and Cancer Research | ISSN: 2476-5848

The Effectiveness of Fertility-Sparing Surgery vs Radical Surgery in Early-Stage Cervical Cancer: A Systematic Review and Meta-Analysis

I.B.G. Fajar Manuaba*, I Gde Sastra Winata, Jessica Nathalia

Department of Obstetrics and Gynecology, Faculty of Medicine, Udayana University, Bali, Indonesia

Article Info

10.24200/jogcr.12.1.112

Received: 2026/05/23
Accepted: 2026/07/13
Published Online: 01 Nov. 2026

Corresponding Information:
I.B.G. Fajar Manuaba,
Department of Obstetrics and Gynecology, Faculty of Medicine, Udayana University, Bali, Indonesia

Email: fajar.manuaba@gmail.com

ABSTRACT

Background & Objective: Cervical cancer is the fourth most common cancer in women worldwide. As delayed childbearing increases, fertility preservation has become an important consideration in early-stage cervical cancer. This study was conducted with aims to compare the effectiveness of fertility-sparing surgery with traditional radical hysterectomy.

Materials & Methods: This PRISMA-compliant meta-analysis included studies from ScienceDirect, Cochrane Library, and PubMed up to June 1, 2025 (PROSPERO: CRD420261420517). Studies comparing Fertility-Sparing Surgery (FSS) and Radical Hysterectomy (RH) in early-stage cervical cancer were included. Primary and secondary outcomes were Progression-Free Survival (PFS) and Overall Survival (OS), respectively. Data were analyzed using RevMan 5.4, and risk of bias was assessed with the Cochrane RoB 2.0 tool.

Results: Of the 1,030 patients, 425 underwent FSS and 605 underwent RH. No significant differences were found in recurrence (OR 0.78, 95% CI 0.49-1.26), mortality rate (OR 0.46, 95% CI 0.16-1.34), or postoperative complications (OR 1.15, 95% CI 0.47-2.81). FSS was associated with a significantly higher rate of intraoperative complications (OR 2.80, 95% CI 1.10-7.13).

Conclusion: Fertility-sparing surgery offers a viable alternative to total hysterectomy for certain individuals with early-stage cervical cancer, enabling fertility preservation while maintaining survival chances.

Keywords: Fertility-sparing surgery, Radical surgery, Early stage, Cervical cancer

Copyright © 2027, This is an original open-access article distributed under the terms of the Creative Commons Attribution-noncommercial 4.0 International License which permits copy and redistribution of the material just in noncommercial usages with proper citation.

1. Introduction

Cervical cancer is the fourth most prevalent cancer diagnosed in women worldwide and the second in incidence and death in regions with lower human development index **(1)**. The proven efficacy of intervention strategies, including vaccination against the main oncogenic strains of Human Papillomavirus (HPV) (the primary etiological factor of cervical cancer) and screening, especially via HPV-based techniques, renders cervical cancer predominantly avoidable **(2,3)**. In low- and middle-income countries, where the bulk of cases and fatalities occur, progress in reducing incidence and mortality has been sluggish, with seeing increases in incidence or mortality rates in some nations during the previous decade **(4-8)**.

Given the earlier start of cervical cancer and the delay in women's reproductive age, fertility-sparing surgery will emerge as an alternate option for patients. Radical hysterectomy, involving the removal of the uterus, cervix, parametria, and upper portion of the vagina, has been the conventional therapy for women with early-stage, operable cervical cancer **(9)**. Nonetheless, severe surgery is linked to considerable morbidity in as many as 25% of patients, with sequelae including chronic bladder dysfunction, lymphedema, bowel dysfunction, and infection **(10,11)**. Multiple retrospective investigations have shown that women with early-stage cancer and positive pathological features had a chance of parametrial involvement of less than 1%, hence questioning the necessity of drastic surgery in this group **(12,13)**.

Advancements in diagnostic techniques and public health screening programs have led to an increase in the early diagnosis of cervical cancer in women at younger ages **(14)**. The decline in fertility in women with a history of gynecologic cancers is linked to despair, sorrow, stress, and sexual dysfunction **(15)**. Simultaneously, the postponement of childbearing in the USA has led to a rise in the age of having first child, partly attributable to the trend of first births occurring among those aged 35 and older, underscoring the growing demand for fertility-preserving interventions with little impact on prognosis **(16)**.

Despite the increasing adoption of fertility-sparing surgery in women with early-stage cervical cancer,

uncertainty remains regarding its comparative oncologic safety, reproductive outcomes, and treatment-related morbidity relative to radical surgery. Previous studies have reported encouraging results; however, the available evidence has not been comprehensively synthesized. Therefore, this systematic review and meta-analysis was conducted with aim to compare fertility-sparing surgery with radical surgery in patients with early-stage cervical cancer, focusing on oncologic outcomes, fertility and reproductive outcomes, as well as perioperative and postoperative complications.

2. Materials and Methods

This systematic review and meta-analysis was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The study has been registered with the International Prospective Register of Systematic Reviews (PROSPERO) under registration number CRD420261420517. A thorough literature search was conducted using ScienceDirect, the Cochrane Library, and PubMed through June 1, 2025. The search strategy combined controlled vocabulary (MeSH and Emtree terms) and free-text keywords related to cervical cancer, fertility-preserving surgery, radical trachelectomy, radical hysterectomy, conization, reproductive outcomes, pregnancy, live birth, miscarriage, and survival outcomes. Reference lists of eligible studies and relevant reviews were also manually screened to identify additional publications. Articles with relevant titles and abstracts were incorporated for comprehensive evaluation and subsequent qualitative and quantitative analyses.

Studies were considered eligible if they met the following criteria: (1) comparative studies (randomized, prospective, or retrospective cohort studies) evaluating fertility-sparing surgery (including radical trachelectomy, simple trachelectomy, or conization-based fertility-preserving approaches) versus radical hysterectomy in women with histologically confirmed early-stage cervical cancer (FIGO IA1 with lymphovascular space invasion, IA2, or IB1); (2) studies evaluating women of reproductive age with a documented desire for fertility preservation, clinically localized disease, negative lymph node status, and no evidence of distant metastasis; (3) studies reported at least one oncologic outcome (recurrence, disease-free survival, overall survival, or mortality), perioperative outcome (intraoperative or postoperative complications), or reproductive outcome (pregnancy rate, live birth rate, miscarriage, preterm delivery, infertility, or other long-term fertility outcomes); and (4) studies with sufficient data to calculate effect estimates.

To enhance the clinical relevance of this review, predefined subgroup analyses were planned according to tumor size (≤2 cm vs >2 cm), surgical approach (vaginal vs abdominal/open or minimally invasive radical trachelectomy), and fertility outcomes, when sufficient data were available. In addition, studies evaluating conization-based fertility-preserving strategies were considered during the literature search and narrative synthesis to provide a broader perspective on contemporary fertility-preserving management.

Studies were excluded if they were case reports, conference abstracts, review articles, editorials, or letters without original data; did not include a comparison group; enrolled patients with locally advanced or metastatic cervical cancer; lacked extractable outcome data; had inaccessible full texts despite institutional access; or were published in languages other than English. The detailed study selection process is presented in Figure 1.

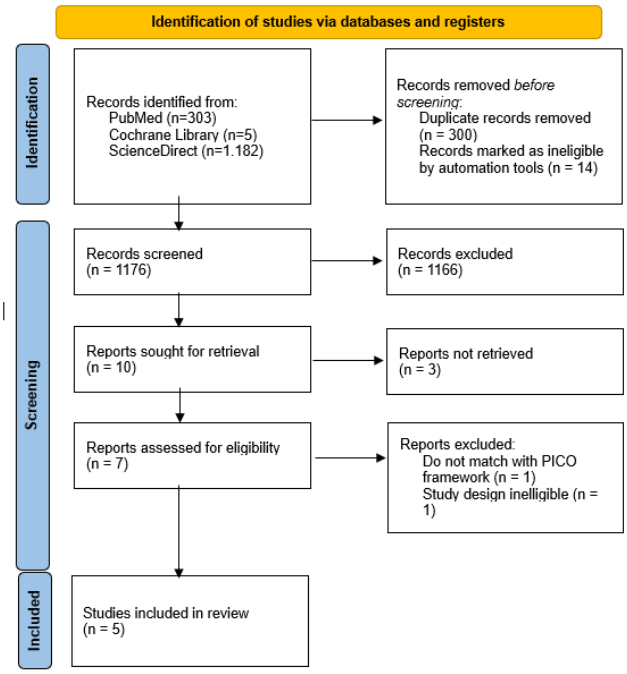


Figure 1. Prisma Flowchart

All duplicates were removed, and the titles and abstracts were independently screened by two reviewers (JN, IGSW) against the eligibility criteria; then, eligible records were retrieved for full-text review. Any discrepancies were discussed among the reviewers and, when necessary, mediated by a third reviewer (IBGFM). Studies were then extracted into a single summary table, including study details (author; year), study design, location, population/number of patients, and outcomes. Articles were evaluated for quality using the Consolidated Standards of Reporting Trials (CONSORT) guidelines. Quality evaluation was conducted cooperatively by all reviewers until

consensus was achieved. The bias risk assessment was conducted utilizing the RoB-2 tools supplied by Cochrane.

A meta-analysis was conducted using Review Manager version 5.4 (Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration). The Odds Ratio (OR) and its 95% Confidence Interval (CI) were chosen as the standard metric to assess the intervention's impact on the primary outcome. Due to expected clinical variability, impact sizes were aggregated utilizing random-effects models. The analytical result is deemed significant if the P-value is less than 0.05. Heterogeneity was examined using the Higgins I-squared (I^2) statistical model. The results of the heterogeneity test were categorized as minimal (0-25%), low (25%-50%), moderate (50-75%), or high (>75%).

3. Results

Five trials encompassing 1030 individuals with cervical cancer stages IA2-IB who had fertility-sparing surgery or radical hysterectomy were ultimately included in this meta-analysis **(17-21)**. Of the total, 425 women underwent fertility-sparing surgery, whereas the remaining 605 constituted the radical hysterectomy group. The inclusion criteria were: histologically confirmed cervical carcinoma at stages≤IB, lack of lymph node or other metastases, no tumor extension beyond the cervix, women of reproductive age desiring fertility preservation, and no documented history of fertility impairment. Guo et al., **(17)** encompassed persons with IA2-IB1, whereas Van Gent et al., presented findings for patients who underwent surgery for cervical cancer stages IA2-IB. The last three studies involved people diagnosed with IB1 cervical carcinoma. Additionally, Van Gent et al., presented findings about the nerve-sparing approach in fertility-sparing surgery or radical hysterectomy **(20)**. Four studies were retrospective **(17-19,21)**; whereas Van Gent et al.'s research was prospective **(20)**. The examined indices were organized in Table 1 that illustrated patients' characteristics, primary intraoperative and postoperative outcomes, recurrence rates, and survival results for fertility-sparing surgery versus radical hysterectomy.

Since reproductive outcomes were reported inconsistently across studies, quantitative meta-analysis was not feasible. Therefore, long-term fertility outcomes were synthesized narratively. Among the included studies, Guo et al., reported that patients undergoing abdominal radical trachelectomy achieved favorable reproductive outcomes without compromising oncologic safety. Although the 5-year overall survival was comparable between patients with tumors ≤2 cm and those with tumors measuring 2-4 cm (97.0% vs. 98.6%), women with tumors ≤2 cm demonstrated a significantly higher pregnancy rate (45.2% vs. 17.2%, P=0.020), suggesting that smaller tumor size may be associated with improved reproductive potential following fertility-sparing surgery. Furthermore, pregnancy rates were comparable between patients with squamous cell carcinoma and non-squamous histologies (33.3% vs. 26.7%) **(17)**.

Van Gent et al., also reported an overall pregnancy rate of 52.9% (95%CI= 28.7-77.2%) following nerve-sparing radical abdominal trachelectomy, indicating that fertility preservation remains achievable in carefully selected patients with early-stage cervical cancer **(20)**. The remaining included studies primarily focused on oncologic and perioperative outcomes and provided limited information regarding reproductive endpoints such as live birth, miscarriage, preterm delivery, or infertility. Consequently, these outcomes could not be quantitatively synthesized. Overall, the available evidence suggests that fertility-sparing surgery can preserve reproductive potential in appropriately selected patients, particularly those with tumors ≤2 cm; however, heterogeneity in outcome reporting precluded pooled analysis of long-term fertility outcomes **(20)**.

No comparative studies evaluating conization-based fertility-preserving approaches fulfilled the eligibility criteria for quantitative synthesis. Most available publications consisted of single-arm observational studies or without radical hysterectomy comparators. Therefore, conization-based approaches were summarized narratively in the discussion rather than in the pooled analysis.

The meta-analysis showed no significant difference in cervical cancer recurrence between the groups, with an odds ratio of 0,78 (95%CI= 0,49-1,26; P-value=0.31; I2=21 %) Figure 2.

The pooled results of the meta-analysis for mortality, with an odds ratio of 0.46 (95% CI 0.16-1.34; P-value=0.16; I2=24%) are shown in Figure 3.

As presented in Figure 4, there was a significant difference in the odds of intraoperative complications in our pooled results, with an odds ratio of 2.8 (95%CI= 1.1-7.13; P-value=0.03; I2=0%), indicating that fertility-sparing surgery significantly increases the rate of intraoperative complications.

The meta-analysis showed no significant difference in postoperative complications of cervical cancer between the groups, with an odds ratio of 1.15 (95%CI= 0.47-2.81; P-value=0.77; I2=69%) (Figure 5).

Table 1. Characteristics of Included Studies

Study	Location	Study Design	Number of patients	Results
Guo et al., 2018 [17]	China	Retrospective cohort study	329 patients Abdominal Radical Trachelectomy (ART): 143 Radical Hysterectomy (RH): 186	Recurrence and Death Rate ART: 4(2.9%) patients, 3(2.2%) patients (P=0.444) RH: 8(4.6%) patients, 4(2.3%) patients (P=0.999) In the ART group, Squamous Cell Carcinoma (SCC) patients had a 5-year overall survival and pregnancy rate similar to those of non-SCC patients (98.1% vs 96.8%, P=0.999; 33.3% vs 26.7%, P=0.873) Patients with tumors≤2 cm and 2 to 4 cm had similar 5-year overall survival rates (97.0% vs 98.6%, P=0.999), except that patients with tumors≤2 cm had a higher pregnancy rate (45.2% vs 17.2%, P=0.020).
Li et al., 2016 [18]	China	Retrospective study	248 patients Abdominal Radical Trachelectomy (ART): 107 Radical Hysterectomy (RH): 141	Recurrence and Mortality Rate ART: 2 patients, 3 patients (P=NS) RH: 3 patients, 0 patients (P=NS) Incidence rates of intraoperative complications ART: 1.9% (P=NS) RH: 0.7% (P=NS) Incidence rates of postoperative complications ART: 36.4% (P=<0.05) RH: 19.1% (P=<0.05)
Llueca et al., 2022 [19]	Spain	Retrospective study	222 patients Abdominal Radical Trachelectomy (ART): 111 Radical Hysterectomy (RH): 111	Recurrence Rate ART: 28.9% (p-value not available) RH: 13.2% (p-value not available) The rate of disease-free survival at 5 years ART: 68.99% (P-value not available) RH: 88.01% (P-value not available)
Van Gent et al., 2014 [20]	Netherlands	Case Control	100 patients Abdominal Radical Trachelectomy (ART): 23 Radical Hysterectomy (RH): 77	Recurrence Rate ART: 3.6% (P=0.44) RH: 7.8% (P=0.44) Overall Pregnancy Rate 52.9% (95% CI, 28.7%-77.2%)
Zhang et al., 2014 [21]	China	Retrospective study	129 patients Abdominal Radical Trachelectomy (ART): 39 Radical Hysterectomy (RH): 90	The parametrium resection length (mm) ART: 44.60 (P=0.432) RH: 45.48 (P=0.432) Analysis of Parametrial Lymph Nodes (PMLN) ART: 28 patients (77.78%) (P>0.05) RH: 86 patients (95.56%) (P>0.05) Solitary PMLN metastases were observed. ART: 3 patients (10.71%) (P-value not available) RH: 6 patients (6.98%) (P-value not available) Need for Chemotherapy/Radiation: ART: 13 patients (33.33%) (P=0.017) RH: 36 patients (40.00%) (P=0.017)

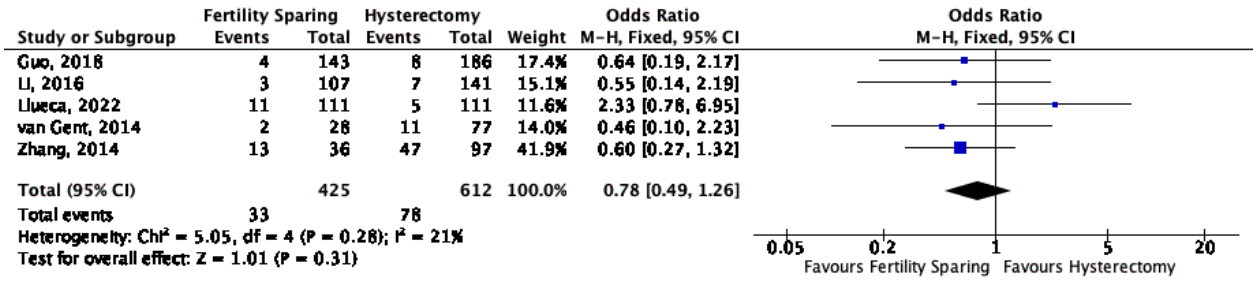


Figure 2. Pooled results for recurrence of cervical cancer (17-21)

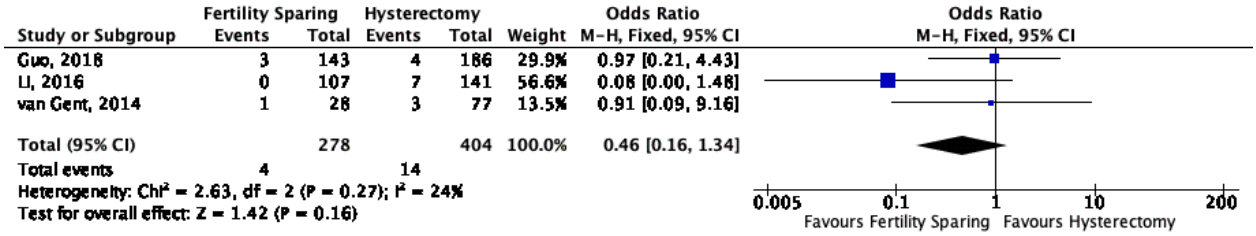


Figure 3. Pooled results for the mortality of cervical cancer

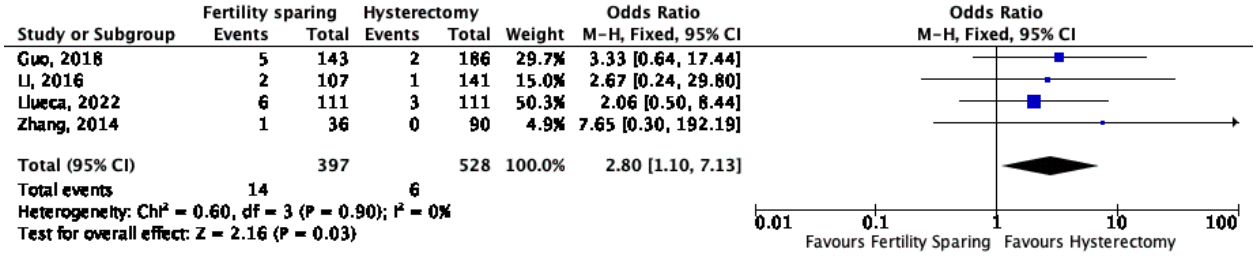


Figure 4. Pooled results for intraoperative complications between both interventions

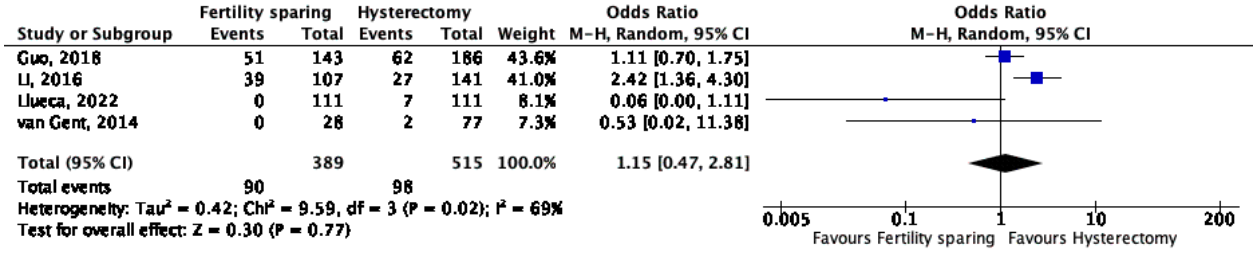


Figure 5. Pooled results for postoperative complications between both interventions

4. Discussion

This research sought to assess the efficacy of fertility-sparing surgery in patients with early-stage cervical cancer in comparison to conventional radical hysterectomy. The results indicated a markedly elevated likelihood of intraoperative problems in individuals who received fertility-sparing surgery. No differences were observed concerning recurrences, postoperative complications, or survival rates between fertility-sparing surgery and radical hysterectomy.

Tseng et al., assessed 2717 individuals with cervical cancer at FIGO 2009 stage 1B1 using the SEER database (Surveillance, Epidemiology, and End Results). All of the patients had lymphadenectomies, but only 125 women were able to have children again and had conization/trachelectomy. The other 2592 women had a hysterectomy. At 10 years, there were no differences between the two groups in the number of people who had died from the disease **(22)**. This fits with what we found. Even though people in their early 30s in Spain are putting off having children more and more often, fertility preservation surgery is not often done after a finding of early cervical cancer **(23)**.

Surgery to save a woman's fertility for cervical cancer can only be done by very skilled doctors in specialized reproductive oncology centers. If a young woman wants to keep her fertility, she should be told about fertility-sparing surgery and directed to a tertiary care hospital with a lot of experience in this type of cancer treatment. Still, the cancer outcomes for Spanish women with cervical cancer and a growth size of less than 2 cm are similar to what has been written **(24)**.

Xu et al., conducted a meta-analysis to assess the effectiveness of radical trachelectomy, whether performed abdominally or vaginally. No significant differences were observed between the patients who received radical trachelectomy and those who underwent radical hysterectomy concerning recurrence rates (P=0.47), 5-year recurrence-free survival (P=0.69), 5-year overall survival (P=0.78), postoperative mortality rate (P=0.80), intraoperative complications rate (P=0.72), and postoperative complications rate (P=0.41) **(25)**. These results align with the findings of the current meta-analysis. Nonetheless, the meta-analysis by Xu et al., included results from only three trials involving patients who underwent vaginal radical trachelectomy or radical hysterectomy, and short-term outcomes were not evaluated because standard deviations for the relevant parameters were unavailable **(25)**. Dursun et al., also examined the short- and long-term results of patients with cervical cancer who received vaginal radical trachelectomy and radical hysterectomy, and the findings were similar recurrence rates and death between the two groups, along with a 70% pregnancy rate among women in the vaginal radical trachelectomy group intending to conceive **(26)**.

A fundamental criterion for executing fertility-sparing surgery is that the nodes are negative. Park et al., recommended performing lymph node evaluation via sentinel lymph node biopsy and/or complete lymph node dissection **(27)**. Some authors say that checking the nodes after neoadjuvant chemotherapy is a good idea because it may get rid of micrometastases and keep the patient's fertility in most cases. However, none of the patients in this series had any intraoperative positive lymph nodes, so they all underwent surgery **(28)**. Most concluded that people with lymph node spread should receive additional chemoradiation rather than surgery. This aligns with what the National Comprehensive Cancer Network and the European Society for Medical Oncology have already reported **(29,30)**.

Tumor size and the stage of illnes, is the second primary factor in determining the indication and type of fertility-sparing surgery. In data reported by Llueca et al., tumors exceeding 2 cm recurred in 14.8% of cases, whereas those measuring less than 2 cm recurred in just 3.9% (P<0.0083) across both traditional and experimental methodologies **(19)**. This was evidenced by an HR of 2.09 for tumors larger than 2 cm **(16)**. This unfavorable outcome, as noted in our dataset, is independent of histology, lymphovascular space invasion, prior conisation, or surgical technique.

In terms of the surgery method, Llueca et al., **(19)** reported no differences between vaginal and minimally invasive methods. This is different from what the LACC study found **(31)**. Ramirez, et al., studied PT, 60.5% of fertility-sparing surgery and 65.8% of radical hysterectomies in their matched group were done using a minimally invasive method. When relapses after laparoscopic radical hysterectomy are compared with those after vaginal radical hysterectomy (16% vs. 7.69%), a trend is observed. There were no changes in Disease-Free Survival (DFS) or Overall Survival (OS) between open and laparoscopic radical trachelectomy in a recent randomized clinical study **(32)**.

The present study has several limitations. Most included studies were retrospective, increasing the risk of selection bias and confounding. Variations in patient characteristics, surgical techniques, and follow-up periods may have influenced the outcomes. In addition, fertility outcomes were reported inconsistently, and the small number of recurrence and mortality events limited the statistical power. Only English-language studies were included, potentially introducing language bias. Unpublished studies and gray literature were not systematically searched, which may have increased publication bias. Additionally, the limited number of eligible studies restricted subgroup analyses.

Future prospective multicenter studies and randomized trials, where feasible, are needed to establish standardized patient selection criteria, evaluate long-term oncologic and reproductive outcomes, and compare different fertility-sparing techniques. Further research should also incorporate

patient-reported outcomes and quality-of-life measures to inform shared clinical decision-making.

5. Conclusion

The results demonstrate that whereas fertility-sparing surgery correlates with a markedly increased risk of intraoperative problems, there are no significant variations between the two surgical methods in recurrence rates, postoperative complications, or overall survival. The findings substantiate the rising necessity for fertility-preserving therapies due to the increasing age of first delivery and the psychosocial effects of cancer on young women. The study highlights the importance of meticulous patient selection and the need for further research to improve treatment approaches for this population.

6. Declarations

Acknowledgments

None.

Ethical Considerations

Not applicable.

Authors' Contributions

I.B.G.F.M, I.G.S.W, and J.N: Conceptualization, Data curation and Methodology. Supervision: I.B.G.F.M; Writing- original draft: I.G.S.W, and J.N; Funding acquisition: I.B.G.F.M; Writing- review and editing: I.G.S.W, and J.N. All authors have read and agreed to the final version of the manuscript.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Fund or Financial Support

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68(6):394-424. [doi:10.3322/caac.21492]
2. Arbyn M, Xu L. Efficacy and safety of prophylactic HPV vaccines: a Cochrane review of randomized trials. Expert Rev Vaccines. 2018;17(12):1085-91. [doi:10.1080/14760584.2018.1548282]
3. Bouvard V, Wentzensen N, Mackie A, Berkhof J, Brotherton J, Giorgi-Rossi P, et al. The IARC perspective on cervical cancer screening. N Engl J Med. 2021;385(20):1908-18. [doi:10.1056/NEJMsr2030640]
4. Ginsburg O, Bray F, Coleman MP, Vanderpuye V, Eniu A, Kotha SR, et al. The global burden of women's cancers: a grand challenge in global health. Lancet. 2017;389(10071):847-60. [doi:10.1016/S0140-6736(16)31392-7]
5. Arbyn M, Weiderpass E, Bruni L, de Sanjosé S, Saraiya M, Ferlay J, et al. Estimates of incidence and mortality of cervical cancer in 2018: a worldwide analysis. Lancet Glob Health. 2020;8(2):e191-e203 [doi:10.1016/S2214-109X(19)30482-6]
6. Yang M, Du J, Lu H, Xiang F, Mei H, Xiao H. Global trends and age-specific incidence and mortality of cervical cancer from 1990 to 2019: an international comparative study based on the Global Burden of Disease. BMJ Open. 2022;12(7):e055470. [doi:10.1136/bmjopen-2021-055470]
7. Zhang X, Zeng Q, Cai W, Ruan W. Trends of cervical cancer at global, regional, and national level: data from the Global Burden of Disease study 2019. BMC Public Health. 2021;21(1):894. [doi:10.1186/s12889-021-10907-5]
8. He WQ, Li C. Recent global burden of cervical cancer incidence and mortality, predictors, and temporal trends. Gynecol Oncol. 2021;163(3):583-92. [doi:10.1016/j.ygyno.2021.10.075]
9. Arab M. Fertility-sparing in cervical cancer. J Obstet Gynecol Cancer Res. 2021;6(1):1-5. [doi:10.30699/jogcr.6.1.1]
10. Landoni F, Maneo A, Colombo A, Placa F, Milani R, Perego P, et al. Randomised study of radical surgery versus radiotherapy for stage Ib-IIa cervical cancer. Lancet. 1997;350(9077):535-40. [doi:10.1016/S0140-6736(97)02250-2]

11. Brooks RA, Wright JD, Powell MA, Rader JS, Gao F, Mutch DG, et al. Long-term assessment of bladder and bowel dysfunction after radical hysterectomy. Gynecol Oncol. 2009;114(1):75-9. [doi:10.1016/j.ygyno.2009.03.036]
12. Schmeler KM, Frumovitz M, Ramirez PT. Conservative management of early stage cervical cancer: is there a role for less radical surgery? Gynecol Oncol. 2011;120(3):321-5. [doi:10.1016/j.ygyno.2010.12.352]
13. Winata IGS, Budiana ING, Jawi IM, Suwiyoga K. Neoadjuvant chemotherapy in stadium IB3, IIA2 and IIB cervical cancer: a narrative review. Biomed Pharmacol J. 2022;15(2):901-10. [doi:10.13005/bpj/2425]
14. Fokom Domgue J, Schmeler KM. Conservative management of cervical cancer: current status and obstetrical implications. Best Pract Res Clin Obstet Gynaecol. 2019;55:79-92. [doi:10.1016/j.bpobgyn.2018.06.009]
15. Carter J, Rowland K, Chi D, Brown C, Abu-Rustum N, Castiel M, et al. Gynecologic cancer treatment and the impact of cancer-related infertility. Gynecol Oncol. 2005;97(1):90-5. [doi:10.1016/j.ygyno.2004.12.019]
16. Batman SH, Schmeler KM. Fertility-sparing and less radical surgery for cervical cancer. Curr Oncol Rep. 2022;24(11):1541-8. [doi:10.1007/s11912-022-01317-w]
17. Guo J, Zhang Y, Chen X, Sun L, Chen K, Sheng X. Surgical and oncologic outcomes of radical abdominal trachelectomy versus hysterectomy for stage IA2-IB1 cervical cancer. J Minim Invasive Gynecol. 2019;26(3):484-91. [doi:10.1016/j.jmig.2018.06.006]
18. Li X, Li J, Wen H, Ju X, Chen X, Xia L, et al. The survival rate and surgical morbidity of abdominal radical trachelectomy versus abdominal radical hysterectomy for stage IB1 cervical cancer. Ann Surg Oncol. 2016;23(9):2953-8. [doi:10.1245/s10434-016-5216-1]
19. Llueca A, Ibañez MV, Torne A, Gil-Moreno A, Martin-Jimenez A, Diaz-Feijoo B, et al. Fertility-sparing surgery versus radical hysterectomy in early cervical cancer: a propensity score matching analysis and noninferiority study. J Pers Med. 2022;12(7):1081. [doi:10.3390/jpm12071081]
20. van Gent MDMJ, van den Haak LW, Gaarenstroom KN, Peters AAW, van Poelgeest MIE, Trimbos JBM, et al. Nerve-sparing radical abdominal trachelectomy versus nerve-sparing radical hysterectomy in early-stage (FIGO IA2-IB) cervical cancer: a comparative study on feasibility and outcome. Int J Gynecol Cancer. 2014;24(4):735-43. [doi:10.1097/IGC.0000000000000114]
21. Zhang D, Li J, Ge H, Ju X, Chen X, Tang J, et al. Surgical and pathological outcomes of abdominal radical trachelectomy versus hysterectomy for early-stage cervical cancer. Int J Gynecol Cancer. 2014;24(7):1312-8. [doi:10.1097/IGC.0000000000000185]
22. Tseng JH, Aloisi A, Sonoda Y, Gardner GJ, Zivanovic O, Abu-Rustum NR, et al. Less versus more radical surgery in stage IB1 cervical cancer: a population-based study of long-term survival. Gynecol Oncol. 2018;150(1):44-9. [doi:10.1016/j.ygyno.2018.04.571]
23. Gorostidi M, Gil-Ibañez B, Alonso S, Gil-Moreno A, Hernandez A, Torné A, et al. Fertility preservation treatment of gynecological cancer patients in Spain: a national survey (GOFER study). Arch Gynecol Obstet. 2020;301(3):793-800. [doi:10.1007/s00404-020-05468-8]
24. Cibula D, Pötter R, Planchamp F, Avall-Lundqvist E, Fischerova D, Haie Meder C, et al. The European Society of Gynaecological Oncology/European Society for Radiotherapy and Oncology/European Society of Pathology guidelines for the management of patients with cervical cancer. Int J Gynecol Cancer. 2018;28(4):641-55. [doi:10.1097/IGC.0000000000001216]
25. Xu L, Sun FQ, Wang ZH. Radical trachelectomy versus radical hysterectomy for the treatment of early cervical cancer: a systematic review. Acta Obstet Gynecol Scand. 2011;90(11):1200-9. [doi:10.1111/j.1600-0412.2011.01231.x]
26. Dursun P, LeBlanc E, Nogueira MC. Radical vaginal trachelectomy (Dargent's operation): a critical review of the literature. Eur J Surg Oncol. 2007;33(8):933-41. [doi:10.1016/j.ejso.2006.11.021]
27. Park JY, Kim DY, Kim JH, Kim YM, Kim YT, Nam JH. Outcomes after radical hysterectomy according to tumor size divided by 2-cm interval in patients with early cervical cancer. Ann Oncol. 2011;22(1):59-67. [doi:10.1093/annonc/mdq321]
28. Cao DY, Yang JX, Wu XH, Chen YL, Li L, Liu KJ, et al. Comparisons of vaginal and abdominal radical trachelectomy for early-stage cervical cancer: preliminary results of a multi-center

research in China. Br J Cancer. 2013;109(11):2778-82. [doi:10.1038/bjc.2013.656]
29. Koh WJ, Abu-Rustum NR, Bean S, Bradley K, Campos SM, Cho KR, et al. Cervical cancer, version 3.2019, NCCN clinical practice guidelines in oncology. J Natl Compr Canc Netw. 2019;17(1):64-84. [doi:10.6004/jnccn.2019.0001]
30. Marth C, Landoni F, Mahner S, McCormack M, Gonzalez-Martin A, Colombo N; ESMO Guidelines Committee. Cervical cancer: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. Ann Oncol. 2017;28(Suppl 4):iv72-iv83. [doi:10.1093/annonc/mdx220]
31. Ramirez PT, Frumovitz M, Pareja R, Lopez A, Vieira M, Ribeiro R, et al. Minimally invasive versus abdominal radical hysterectomy for cervical cancer. N Engl J Med. 2018;379(20):1895-904. [doi:10.1056/NEJMoa1806395]
32. Salvo G, Ramirez PT, Leitao MM, Cibula D, Wu X, Falconer H, et al. Open vs minimally invasive radical trachelectomy in early-stage cervical cancer: International Radical Trachelectomy Assessment Study. Am J Obstet Gynecol. 2022;226(1):97.e1-97.e16. [doi:10.1016/j.ajog.2021.08.029]

How to Cite This Article:

Manuaba I.B.G. F, Sastra Winata I G, Nathalia J. The Effectiveness of Fertility-Sparing Surgery vs Radical Surgery in Early-Stage Cervical Cancer: A Systematic Review and Meta-Analysis. J Obstet Gynecol Cancer Res. 2027;12(1):112-120.

Download citation: RIS | EndNote | Mendeley |BibTeX |