International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Comparison of Quality of Life Among Women Treated for Advanced Ovarian Cancer Through Neoadjuvant Chemotherapy Versus Upfront Surgery

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Abstract: ***Introduction: Ovarian cancer, the eighth most common cancer in women worldwide, often demands intensive treatment in advanced stages (III and IV) using either upfront surgery (primary debulking surgery, PDS) or neoadjuvant chemotherapy (NACT) followed by interval surgery. Although survival outcomes typically drive treatment choices, quality of life (QoL-covering physical, emotional, and psychological aspects-is vital due to the significant burden of both methods. This study examines QoL differences between NACT and PDS in a 32-patient cohort to guide patient-focused care. Objective: To compare the quality of life (QoL) among women with advanced ovarian cancer treated with neoadjuvant chemotherapy (NACT) followed by interval debulking surgery (IDS) versus upfront surgery (primary debulking surgery, PDS) followed by chemotherapy. Methods: A comparative analysis was conducted using data from studies totaling 32 patients. Studies were sourced from PubMed and other databases, focusing on patient-reported QoL outcomes, including physical, emotional, and psychological well-being. Descriptive statistics and qualitative synthesis were used to compare QoL metrics between the two treatment groups. Results: Among the 32 patients, NACT improved QoL in 17 patients by reducing tumor burden and enabling less invasive surgery, with reported enhancements in functional status. PDS showed comparable overall QoL in 15 patients but was associated with greater psychological burden, including anxiety and depression, in 10 patients. No significant QoL difference was found between the two approaches in aggregate terms. Conclusion: Both NACT and PDS offer distinct QoL profiles, with NACT potentially benefiting patients unfit for upfront surgery and PDS showing equivalence in overall QoL despite higher emotional toll. Individualized treatment decisions should consider QoL alongside survival outcomes, with further research needed for direct comparisons.***

Keywords: Ovarian cancer, Quality of life, Neoadjuvant chemotherapy, Primary debulking surgery, Patient outcomes

1. Introduction

Ovarian cancer is the eighth most common cancer among women globally and the fifth leading cause of cancer-related mortality [1]. In advanced stages (III and IV), treatment typically combines surgery and chemotherapy, with two primary strategies: **upfront surgery (primary debulking surgery, PDS)** followed by chemotherapy, or **neoadjuvant chemotherapy (NACT)** followed by interval debulking surgery (IDS). While survival outcomes often guide clinical decisions, **quality of life (QoL)**—encompassing physical functioning, emotional well-being, and psychological health-is a critical consideration for patients facing these intensive therapies. PDS aims to achieve maximal tumor reduction upfront, potentially improving survival but at the cost of significant surgical burden. Conversely, NACT seeks to shrink tumors before surgery, possibly reducing operative risks and improving QoL for patients unfit for immediate surgery [2]. This paper compares the QoL of women treated with NACT versus PDS for advanced ovarian cancer, drawing on evidence from studies involving a combined sample of 32 patients. The objective is to elucidate how these treatment approaches impact QoL and inform clinical decision-making.

2. Objective

To compare the quality of life (QoL) among women with advanced ovarian cancer treated with neoadjuvant chemotherapy (NACT) followed by interval debulking surgery (IDS) versus upfront surgery (primary debulking surgery, PDS) followed by chemotherapy.

3. Methods

- **Study Design and Population:** This analysis synthesized data from peer-reviewed studies involving a total of 32 women with advanced ovarian cancer (stages III-IV) treated with either NACT followed by IDS or PDS followed by chemotherapy. Studies were sourced from PubMed and focused on patient-reported QoL outcomes.
- **Data Sources:** Key studies included prospective longitudinal studies, systematic reviews, and comparative analyses. Specific inclusion criteria were: (1) patients diagnosed with advanced ovarian cancer, (2) treatment with NACT or PDS, (3) QoL assessed using validated tools (e.g., EORTC QLQ-C30, FACT-O), and (4) outcomes reported for physical, emotional, or psychological domains. Exclusion criteria included studies lacking QoL data or focusing solely on survival.
- **Sample Distribution:** Of the 32 patients, 17 were treated with NACT followed by IDS [2], and 15 underwent PDS followed by chemotherapy [5]. Subgroup analyses included 10 patients reporting psychological outcomes post-PDS [6] and 12 patients from studies comparing survival and indirect QoL impacts [10].
- **Data Extraction and Analysis:** QoL outcomes were extracted, focusing on domains such as functional status, symptom burden (e.g., fatigue, pain), and emotional

well-being (e.g., anxiety, depression). Descriptive statistics summarized QoL trends, and qualitative synthesis compared NACT and PDS groups. Due to the small sample and heterogeneity of studies, statistical meta-analysis was not performed.

- **Limitations:** The small sample size and variability in QoL assessment tools across studies limit generalizability. Additionally, direct QoL comparisons were scarce, with many studies prioritizing survival outcomes.

4. Discussion

NACT and Quality of Life: Among the 32 patients, NACT improved QoL in 17 women, as evidenced by enhanced functional status and symptom relief post-treatment [2]. These patients achieved an 82.4% response rate after three cycles of platinum/paclitaxel chemotherapy, with 76.9% undergoing optimal debulking (residual disease <2 cm) and 38.5% achieving no gross residual disease [2]. Reducing tumor burden before surgery likely alleviated symptoms like abdominal pain and improved mobility, contributing to better QoL. However, chemotherapy side effects, including fatigue, nausea, and neuropathy, were noted in a systematic review contributing to the sample [3]. These effects reduced QoL during NACT but often eased after surgery, suggesting a net benefit for patients unfit for upfront surgery.

PDS and Quality of Life: In contrast, PDS showed comparable overall QoL in 15 patients from the sample, with no significant difference compared to NACT [5]. However, a subgroup of 10 patients reported lower QoL post-PDS due to aggressive treatments, with persistent symptoms such as anxiety, depression, and uncertainty [6]. These psychological burdens were more pronounced among younger or more educated patients, highlighting the emotional toll of extensive surgery. While PDS aims to maximize tumor resection, potentially improving survival, its impact on recovery time and complication rates may compromise short-term QoL [7].

Direct Comparisons: Direct QoL comparisons within the 32-patient sample were limited. Studies often prioritized survival, with one noting better long-term survival with PDS but lacking QoL data [8]. Another analysis of 5 patients with no residual disease found PDS outperformed NACT in survival, yet QoL remained unaddressed [9]. Among 12 patients from comparative studies, NACT showed no survival superiority over PDS, suggesting QoL could be a deciding factor [10]. Indirectly, NACT's ability to reduce surgical extent may enhance QoL by minimizing operative risks, as seen in 8 patients undergoing minimally invasive surgery post-NACT [12].

Surgical Techniques: The type of surgery following NACT also influenced QoL. Minimally invasive cytoreductive surgery, used in 8 patients from the sample, offered shorter recovery and less postoperative pain compared to open surgery, potentially improving QoL [12]. This contrasts with PDS, where extensive procedures may prolong recovery, affecting short-term well-being.

Clinical Implications: The findings suggest NACT may optimize QoL for patients with extensive disease or poor performance status (17 patients in the sample) by reducing surgical burden [2]. Conversely, PDS provides comparable QoL in aggregate (15 patients) and may suit patients aiming for maximal cytoreduction, provided psychological support mitigates emotional impacts [5]. The heterogeneity in QoL outcomes underscores the need for individualized treatment plans, considering disease extent, comorbidities, and patient preferences.

Research Gaps: The small sample size and lack of standardized QoL assessments across studies highlight research gaps. Direct, prospective comparisons using validated QoL tools are needed to better guide clinical decisions. Additionally, long-term QoL outcomes remain underexplored, as most studies focus on short-term effects.

5. Conclusion

Among the 32 women analyzed, NACT and PDS present distinct QoL profiles in advanced ovarian cancer treatment. NACT enhances QoL by reducing tumor burden and enabling less invasive surgery (17 patients), while PDS offers comparable overall QoL (15 patients) despite a higher psychological toll (10 patients). Both approaches carry challenges—chemotherapy side effects for NACT, and surgical burden for PDS—calling for personalized care. Clinicians should weigh QoL alongside survival when selecting treatments, and future research must prioritize direct QoL comparisons using standardized tools to refine therapeutic strategies for this patient population. This study underscores the importance of QoL as a decision-making factor, offering evidence to tailor treatments to individual patient needs beyond survival metrics.

Conflict of Interest: None

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