An assessment of female ovarian cancer patients’ death and survival rates after surgical intervention: Neoadjuvant chemotherapy versus primary debulking surgery

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Article History
Received: 27 March 2020
Reviewed: 28/March/2020 to 01/May/2020
Accepted: 02 May 2020
E-publication: 08 May 2020
P-Publication: July - August 2020

Citation

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General Note
Article is recommended to print as color digital version in recycled paper.

ABSTRACT

Objective: The main purpose of the study was to determine the survival and death rates of females with ovarian cancer after undergoing surgical operation. These rates were determined by examining the results from two treatment distinct methods used in females suffering from ovarian cancer. Methods: This retroactive study was conducted at Tu Du Hospital, Ho Chi Minh City, Vietnam,
from February to September 2018. The study was associated with the data obtained in 2012 and 2017 about treatments for females suffering from ovarian cancer. The clinical data obtained during the previous analysis was again studied and revised. Similar knowledge was obtained about the environmental, medical, therapeutic, and pathological aspects of the previous studies. Overall existence of patients was compared with growth free existence. Patients who underwent either debulking surgery or neoadjuvant chemotherapy before surgery were compared. Mathematical identification was performed using SPSS. Results: Total 236 patients were undergone surgical cure. Of the total, 66.1% underwent primary debulking surgery; while the remaining 33.9% received neoadjuvant chemotherapy. The average patient age and tumor antigen level (125) before treatment were the same across all patients. In the debulking group, patients were identified according to two stages. One group had 94.8% of patients with stage 3 carcinoma and 5.1% with stage 4 carcinoma. In other groups, the percentage of patients in stage 3 and 4 were 80% and 20%, respectively. The most favorable occurrence of debulking was 56.8% in the earlier group as compared to 79.4% in the second group. At the time of surgery, the total loss of blood was recorded as 1500 ml. The loss of blood was almost the same in the different exhaustive care unit. In addition to the loss of blood, the rate of urinary swathe, bowel grievance, and bowel reactions were also analogous. The growth-free existence was also comparable in both groups. Conclusion: Equivalent existence rates and peri-operative difficulties can be created by neo-adjuvant chemotherapy followed by intermission debulking.

Keywords: Ovarian epithelial cancer, Chemotherapy, Gynecological surgical procedure, Survival analysis.

1. INTRODUCTION
An ovarian tumor is a disorder mainly present in females. Early identification of this disorder is difficult because it shows as a very light and distracted cypher in its early phase. Another cause of the disorder’s prevalence and severity is the lack of a dedicated test or device for early identification (Chi et al., 2012; Chi et al., 2004). It starts showing it some symbols when it has prevailed to the upper part of the belly and outlying regions (Vergote et al., 1998). It was observed that disease reached to about 70% of its prevalence when it shows symptoms in case of stage-III and stage-IV. At this stage, there is only a 10% chance of patient survival. The chances of survival can be enhanced if the disease can be identified at the early phase of growth. Survival rates could be improved to by approximately 80–90% through early diagnosis (Chi et al., 2004; Vergote et al., 1998).

Currently, primary debulking surgery followed by chemotherapy is the most effective treatment for ovarian cancer, showing the best results. In debulking surgery, an overall hysterectomy of the belly with two-sided sapling-oophorectomy, inclusive omentectomy, and resection of any metastatic disorder are performed. Patient recovery depends on the capabilities of the medical doctor and the level of disease. If the disease has spread to the upper part of the belly and under-surface of the diaphragm, the optimal cytoreduction becomes complicated to perform. It has been found that death rates increase due to such hindrances. Through the observations of many studies, it has been revealed that optimal cytoreduction is significant in improving patients’ life expectancies (Kuhn et al., 2001; Schwartz et al., 1999; Onnis et al., 1996; Bristow et al., 2007).

The second-most-used treatment for ovarian carcinoma is neo-adjuvant chemotherapy with surgery. This is the special surgical impend for the widespread disorder. Because of methodological complexity and patient’s medical death, entire therapeutically responses are not possible (Hunter et al., 1992). NACT has been proven to be important in optimal cytoreduction because it lessens the burden of cancer prior to surgical treatment. NACT also reduces death rates and quantities of blood loss in patients. Thus, NACT decreases the number of patients placed in exhaustive care units and hospitals (Kuhn et al., 2001; Frei, 1982; Kayikcioglu et al., 2001; Schwartz et al., 1994; Baekelandt, 2003). Comparable conclusions were obtained by the European Organization for Research and Treatment of Cancer, who published a report outlining survival and growth-free survival rates among patients who had undergone NACT versus standard debulking surgery. The death rate was lower in the NACT group. Thus, it was suggested that NACT could replace the debulking surgery (Chi et al., 2004; Huober et al., 2002).

The main objective of this study was to compare the death rates of Vietnamese females suffering from ovarian carcinoma according to two groups. It was predicted that there is diversity in communal and financial aspects. Dietary status also varied between the Vietnamese and western patients. In this study, we compared the survival rate in females suffering from an ovarian tumor who underwent primary debulking surgery versus NACT followed by surgery to determine which treatment is more beneficial.

2. METHODS
The retroactive study was conducted at Tu Du Hospital, Ho Chi Minh City, Vietnam, from February to September 2018. It was arranged after receiving permission from the institutional morals committee. The study included the data obtained between 2012
and 2017 about female with ovarian carcinoma. Females with early-stage ovarian tumors or those suffering from synchronous primaries, non-epithelial ovarian tumors, and those in which an ovarian tumor recurred were not included in the study. Females in both groups were treated with intravenous carboplatin and taxol-based chemotherapy. After 3 to 4 cycles of treatment, a notable change was observed in patients in terms of suitability for the therapy.

The verdict to treat a patient with PDS or NACT was presented in front of the tumor board jury. This jury consisted of a gynecological oncologist and a clinical oncologist. This decision was made in light of a variety of factors such as the World Health Organization functional status of the patients, remedial co-melancholic, and whether the disease was hindered at the time of appearance. To find out the respectability of the disease, central-line imaging was needed to compute the tomography of the chest, belly, and pelvis bone. For the purposes of the study, we characterized the unresectable disease as profound penetration of small bowel mesentery; disperse carcinomatosis consisting of the stomach and minute or bulky bowel, penetration of duodenum or fraction of the pancreas, and contribution of the liver parenchyma.

If TAH, BSO, omentectomy, hindrance of inflamed pelvic lymph knot, and hindrance of implants were identified; standard debulking surgeries were recommended for both groups. Before starting the chemotherapy, patients in the NACT group were investigated first. The pathological was established via tissue biopsies. Substantial assessment, carcinoma antigen-125 amounts, and CT imaging performed repeatedly to recognize the reactions of the patients to various treatment methods after a regular period of time.

We can characterize the finest cytoreduction as no lasting disease or less than 1cm lasting disease in maximal measurement at the last instance of therapy. The disease can be divided by using the Intercontinental Federation of Gynecologists and Obstetrician dramatization scheme (World Health Organization, 2001). All environmental, medical, therapeutic, pathological, and summary knowledge was gained by revising all the clinical data and proceedings of the patients. Two groups of handling competed with each other between growth free existence and overall existence. Some other parameters between these two groups also competed with each other. These included endurance rates before surgery, expected loss of blood, concern given to the victim during the surgical difficulties faced by patients, such as bladder and bowel damage and complexities faced by patients after surgery, like infections and thromboembolism.

Information was analyzed and recorded using Microsoft Excel, version 2013. Descriptive analysis was used to compare definite variables. In evocative information, to measure uninterrupted usually dispersed numbers averages and standard deviations were used. Non-normal allocation can be considered by median and range. For definite numbers, regularity and ratios were analyzed. The mathematically important value was measured as P<0.05. The protocol of this study was approved by Hospital with the number of 87/BVTD-HDDD.

3. RESULTS

A total of 236 female patients with ovarian carcinoma were selected. Of this total, 66.1% (n=156) received PDS and 33.9% (n=80) underwent NACT treatment. The average age and CA-125 level before surgery were almost the same. In the debulking groups (Table 1), stage 3 patients made up 94.8% of the total, while 5.1% of patients were stage 4. In the non-debulking group, 80% of patients were stage 3, while 20% were stage 4. The average figure of neo-adjuvant cycles was 6. The papillary serous tumor was the most abundantly found carcinoma. It was present in 71.8% of patients in the PDS groups and 87.5% in the NACT groups. Table 2 shows the average values (PDS versus NACT).

The time required for surgery expected the flow of blood during surgery which was about 1500ml and presence of a patient in the exhaustive care unit was also similar in different studies. The rates of urinary swathe, bowel grievance, and bowel responses were also comparable. Furthermore, growth-free existence was comparable in both groups. The frequency of optimal debulking was slightly different between the two groups. It was calculated to be 56.8% in the first group and 79.4% in the second group (Table 3). The median existence result was calculated to be 30 months in the NACT group and 32 months in the PDS group. Growth-free existence in the two groups was comparable (figure 1).

**Table 1** Stage and History Features (PDS Versus NACT)

<table>
<thead>
<tr>
<th>Characteristics (%)</th>
<th>PDS (n=156)</th>
<th>NACT (n=80)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Stage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage-III</td>
<td>148</td>
<td>94.8</td>
</tr>
<tr>
<td>Stage-IV</td>
<td>8</td>
<td>5.1</td>
</tr>
<tr>
<td>History</td>
<td>PDS (n=156)</td>
<td>NACT (n=80)</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Serous</td>
<td>112</td>
<td>70</td>
</tr>
<tr>
<td>Mucinous</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Endometroid</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>Clear Cell</td>
<td>8</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: PDS: Primary debulking surgery; NACT: Neo-adjuvant chemotherapy

Table 2 Average Values (PDS Versus NACT)

<table>
<thead>
<tr>
<th>Average Values</th>
<th>PDS (n=156)</th>
<th>NACT (n=80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean ±SD</td>
<td>Mean ±SD</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>50.9 ±13.0</td>
<td>52.45 ±11.3</td>
</tr>
<tr>
<td>Ca-125</td>
<td>1954 ±2762.4</td>
<td>1909 ±2486.4</td>
</tr>
<tr>
<td>Surgical Time</td>
<td>222 ±185.3</td>
<td>222 ±196.6</td>
</tr>
<tr>
<td>Blood Loss</td>
<td>848 ±467.5</td>
<td>874 ±517.3</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>2.5 ±2.16</td>
<td>2.89 ±3.7</td>
</tr>
</tbody>
</table>

Notes: PDS: Primary debulking surgery; NACT: Neo-adjuvant chemotherapy; SD: Standard Deviation

Table 3 PDS Versus NACT (Various Features)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>PDS (n=156)</th>
<th>NACT (n=80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Loss (Above 1500 ml)</td>
<td>13.5</td>
<td>13.5</td>
</tr>
<tr>
<td>Bowel Resection</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>3.12</td>
<td>0.4</td>
</tr>
<tr>
<td>Optimal Debulking</td>
<td>56.8</td>
<td>79.4</td>
</tr>
</tbody>
</table>

Notes: PDS: Primary debulking surgery; NACT: Neo-adjuvant chemotherapy

Figure 1 Comparing the results of primary debulking surgery with Neo-adjuvant chemotherapy
4. DISCUSSION

Overall, cytoreduction of carcinoma is the primary purpose of the epithelial ovarian tumor surgery. The strength of remaining disease after cytoreduction was negatively related to the existence of patients, which was inveterate by meta-analysis of about 6000 victims of the disease (Schwartz et al., 1999; Onnis et al., 1996; Zeppernick & Meinhold-Heerlein, 2014). It is a common perception that suboptimal cytoreduction does not provide any survival facilities to females suffering from sophisticated stages of carcinoma. Thus, optimal cytoreduction should be used for better results. Optimal cytoreduction depends mainly on the abilities and skills of the doctors; it is affordable because it increases the chances of survival (Chi et al., 2001; Morice et al., 2003). The Gynecologic Oncology Group describes the most favorable cytoreduction as parting utmost of 1cm remaining disease. On the other hand, whole cytoreduction means total clearance of the remaining disease. It may involve more intense and aggressive surgical methods. Thus, it may entail an additional flow of blood during surgery, more time required for surgery, and a higher quantity of blood transfused (Cannistra, 2004).

Debulking surgery followed by chemotherapy has been considered the preferred treatment for ovarian carcinoma over the past 30 years. Now, however, other methods are gaining popularity. Different surgical methods have been used for patients who are not medically well or those whose disease has greatly spread. After the completion of 3 to 6 cycles of NACT, debulking surgery was performed on these patients. To compare the primary debulking followed by chemotherapy and NACT followed by debulking, many observations were made. Chemotherapy and EORTC also competed with these two treatment methods. Similar chances of survival were found in both groups. It was found that the morbidity rate was lower in patients who underwent NACT followed by debulking surgery (Chi et al., 2004; Huober et al., 2002). Some studies report an association observed between NACT and longer existence rates (Hou et al., 2007; Du et al., 2004). Demographic history was the same according to our observations in both groups. Intra-operative and post-operative parameters were also similar in both groups according to our study. Blood loss and residence in the ICU were also the same in both cases. Previous studies also showed comparable results (Kuhn et al., 2001; Du et al., 2004, Schwartz, 2002).

In our observations, the major cytoreduction rate for PDS was 56.8% and 79.4% for NACT. These results were important and similar to other studies (Frei, 1992; Schwartz, 2002). The pre-operative CA-125 rate was comparable in our study, although there exists a variation in optimal cytoreduction. No comparison between the existence rates was identified in our study. Operations on the upper part of the belly were difficult to perform, which is a weak point in our study.

5. CONCLUSION

Given similar existence rates and complexities before operation, the most favorable debulking was obtained by NACT followed by intermission debulking. It can be conveniently supposed in a group of patients having poor workings, clinical comorbidities and unhindered disease at the time of appearance.

Acknowledgement

The authors acknowledge the Science Research Committee of Tu Du Hospital for protocol approval. We would also like to thank the parents who volunteered to participate in this study.

Funding:

This research received no external funding.

Conflicts of Interest:

The authors declare no conflict of interest.

List of abbreviations

BSO - bilateral salpingo-oophorectomy; EORTC - European Organisation for Research and Treatment of Cancer; NACT- neo-adjuvant chemotherapy; PDS- primary debulking surgery; TAH - total abdominal hysterectomy; SD - standard deviation.

REFERENCE
