

# Outcome of Women with Breast or Gynecological Cancer in Intensive Care Unit: A Retrospective Analysis

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## ABSTRACT

**Introduction:** From the past few decades, the treatment for gynecologic malignancies has focused almost exclusively on prolongation of life, and few research studies have adequately addressed issues related to quality of life. Treatment for gynecologic malignancies is often quite morbid and may involve multiple modalities. Hence, we carried this analysis on the female patients with breast, ovarian, endometrial or cervical cancer in the ICU to describe epidemiology in serious condition.

**Material and methods:** The present study was carried out in a tertiary care centre. We searched the electronic database and hand searched the ICU admission book for patients with active breast or gynecological cancer who were admitted to the ICU between February 2014 and June 2015 with emergencies related to malignancies. Institutional ethical approval was taken and written consent was obtained before the starting of the study. We only analyzed patients who were admitted to the ICU as an emergency, and excluded patients who were admitted for postoperative recovery after planned surgery. All the results were analyzed by SPSS software. Mann – Whitney test, chi-square test and U test used for the assessment of level of significance.

**Results:** 21 critically ill women with breast or gynecological cancer were admitted to the ICU during the 1.5-year period from January 2014 to July 2015 (breast cancer n = 12, ovarian cancer n = 5, cervical cancer n = 3 and endometrial cancer n = 1). Sepsis was the main reason for admission in ICU (more than 90%), respiratory failure (36.8%) and hypotension with need for vasoactive support (approximately 25%). Multi-organ failure formed the cause of death in all the cases. When compared between ICU survivors and ICU non-survivors, no significant difference was observed regarding age, APACHE and ratio of patients that had sepsis at the time of admission in the ICU. Significantly more number of failures of organ systems was observed in the women who died during their stay in the ICU. Among patients during their stay in ICU, none of them received chemotherapy.

**Conclusion:** Non-cancer patient had similar outcome in ICU when compared to critically ill women with breast or gynaecological cancer. Invasive therapy should not be withheld, especially in cases of sepsis/septic shock.

**Keywords:** Cancer, Gynecological, ICU

## INTRODUCTION

According to recent studies, treatment for gynecologic malignancies has focused almost exclusively on prolongation of life, and few research studies have adequately addressed issues related to quality of life.<sup>1</sup> Quality of life (QOL) involves the assessment of several dimensions: physical well-being, emotional well-being, social well-being, and functional well-being. An article was published by Anderson who stressed on the absence of significant research data on the life's quality among women with gynecological malignancy.<sup>2</sup> Numerous challenges exist in treating gynecologic malignancies in cases in which

the tumor had advanced to a higher stage. These symptoms are often mis-interpreted by the clinicians due to the non-specific nature of these clinical symptoms like occurrence of abdominal distensions, vaginal bleeding, chronic low backache. A combination of different treatment protocols (chemotherapy, surgical intervention, radiotherapy) is used for treating the patients with gynecologic malignancies. Changes in bowel, bladder, and hormonal, sexual and reproductive function are common. In addition, palliation is often difficult in the terminal stage, and death from a slow, obstructive, intra-abdominal process is not unusual.<sup>3</sup> Little is known about the characteristics and prognosis of women with breast or gynaecological cancer in the Intensive care unit (ICU).<sup>4</sup> Ostermann reported data on outcome of patients with haematological malignancies and solid tumours admitted to a large tertiary ICU in the UK and showed that ICU mortality was lower than previously reported.<sup>5</sup> Hence, we carried this analysis on the female patients with breast, ovarian, endometrial or cervical cancer in the ICU to describe epidemiology in serious condition.

## MATERIAL AND METHODS

The present study was carried out in a tertiary care centre. A fully equipped full –time team, of certified professionals takes care of the multi-disciplinary adult ICU. Direct admission of the patients from the Department of cancer and oncology or referred patients from other hospitals for specific treatment formed the group of patients that were admitted for treatment. We searched the electronic database and hand searched the ICU admission book for patients with active breast or gynecological cancer who were admitted to the ICU between February 2014 and July 2015 with cancer-related emergencies. The referring oncology team and the staff team in-charge of the ICU in all the patients took the decision in relation to the admission of the patients in the ICU. Broad admission policies were followed by the ICU team following frequent changes for the benefits of the ICU. Those patients were not admitted to the ICU with uncontrolled disease without any treatment options. The oncology ward offered the end-of-life care in the present case. At the time when all the participants were convinced about the futility of

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the life-sustaining therapies, the collective decision regarding the withdrawal or with-holding the life support measures was made. All those patients who were admitted in the ICU post-surgically for the recovery phase were excluded from the present study. However, we included only those patients who were admitted as emergency cases in the ICU. Sequential Organ Failure Assessment (SOFA) and Acute Physiology and Chronic Health Evaluation (APACHE) II scoring systems were used for grading the severity of the patients on the day of admission in ICU. Knaus criteria were used for the determination of the association of the organ failure.<sup>20</sup> The cases which required non-invasive or invasive methods of mechanical ventilation were included under the category of respiratory support. Use of any type of inotropic or vasopressor therapy was included under the category of vaso-active support. Neutropenia was defined as cases in which the total white blood cell count fell below the level of  $1.0 \times 10^9/L$ . Data of the all the patients which was recorded at the time of their first admission were included in cases of patient that were admitted to the ICU more than once. Median and range were reported to be the continuous variables while the number and percentage were reported to be categorical variables in the present retrospective analysis.

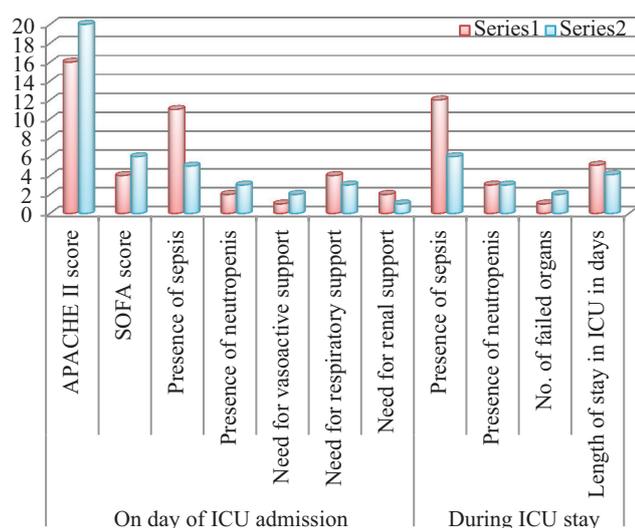


Figure-1: Characteristics and outcome of patients admitted to ICU

### STATISTICAL ANALYSIS

All the results were analyzed by SPSS software. Mann – Whitney test, chi-square test and U test used for the assessment of level of significance. P-value of less than 0.05 was taken as significant. Institutional ethical approval was taken and written consent was obtained before the starting of the study.

### RESULTS

During the 1.5-year period from January 2014 to July 2015, 21 critically ill women with breast or gynecological cancer were admitted to the ICU (breast cancer n = 12, ovarian cancer n = 5, n=3 for the cancer of the cervix 1 for the malignancy of the endometrium. During the time when the patients were admitted in the ICU, 9 patients with cancer of breast region and 3 patients with gynaecological cancer were known to have metastatic disease (prevalence 64.2%). The main reasons for admission to ICU were sepsis (more than 90%), respiratory failure (36.8%) and hypotension with need for vasoactive support (approximately 25%). ICU mortality among breast cancer and gynaecological cancer patients was 27.3% and 37.5%, respectively. In all cases, the cause of death was multi organ failure. There was no significant difference in age, APACHE II and SOFA score and proportion of patients with sepsis on admission to ICU between ICU survivors and non-survivors (Table 1). Significantly more number of organs failures was recorded in patients who died during the stay in the ICU. No patient received chemotherapy while in ICU. Four women had at least one further admission to ICU. Hospital mortality was 57.9% and six-month mortality was 68.4%.

### DISCUSSION

Over the last decade, survival rates in critically ill cancer patients have improved dramatically.<sup>6,7</sup> Three factors have contributed to this welcome trend. First factor, advances in the treatment of solid tumors and hematologic malignancies produced a 20% decrease in overall mortality in cancer patients from 1978 to 1998.<sup>8-12</sup> Second factor, is the earlier admission of patient to the ICU, which was found to result in overall better rate of survival in patients who were critically ill with cancer.<sup>13</sup> Bronchoscopy and bronchoalveolar lavage were the successful intervention used while non-invasive mechanical ventilation in

Parameters	Patients with cancer of gynaecological part			
	ICU survivors	ICU non-survivors	p-value	
	<b>Mean age</b>	<b>52.8 years</b>	<b>49.1 years</b>	<b>1.001 (ns)</b>
<b>Metastasis present</b>	<b>7 (59.8%)</b>	<b>3 (62.4%)</b>	<b>1.202 (ns)</b>	
On day of ICU admission	APACHE II score	16	20	1.542 (ns)
	SOFA score	4	6	1.741 (ns)
	Presence of sepsis	11	5	1.084 (ns)
	Presence of neutropenia	2	3	1.315 (ns)
	Need for vasoactive support	1	2	1.999 (ns)
	Need for respiratory support	4	3	1.846 (ns)
	Need for renal support	2	1	1.744 (ns)
During ICU stay	Presence of sepsis	12	6	1.333 (ns)
	Presence of neutropenia	3	3	1.119 (ns)
	No. of failed organs	1	2	0.002(s)
	Length of stay in ICU in days	5.1	4.1	1.585 (ns)

APACHE: Acute Physiology and Chronic Health Evaluation; SOFA: Sequential Organ Failure Assessment

Ns: Non significant, s: significant

Table-1: Characteristics and outcome of patients admitted to ICU

patients with pulmonary infiltrates, aggressive management of septic shock, and investigations of specific organ failures.<sup>14-19</sup> Third factor, progress has been made in selecting patients likely to benefit from ICU admission.<sup>6,16</sup> Because the decision to recommend ICU admission is based on complex criteria, and to ensure appropriate utilization of ICU resources without depriving critically ill patients of a chance to recover, the North American and European Societies of Critical Care Medicine have developed recommendations for ICU admission, triage, and discharge.<sup>17</sup> It shows that women with breast or gynecological cancer admitted to ICU and patient with other cohorts routinely admitted to the ICU, the mortality of both is similar approximately 31.4%.<sup>20,21</sup> However, six-month mortality was high at 68%. Controversy is often raised in context to the decision of admission of the patients with advanced stage of malignancies about the use of right resourced for providing effective care to all the patients. It is well known that significant amount of difficulty is encountered while assessing the risk factors and predicting the prognosis of the critically ill patients.<sup>22</sup> Analysis of 86 patients with hematological malignancies did not identify any absolute predictors of mortality.<sup>23</sup> The data indicates that decision-making about the continuation or discontinuation of treatment was greatly influenced by the sequential change in the SOFA score during the admission and stay of the patients in the ICU. It has also been observed in the past literature that during the phase of acute critical illness, cancer-specific characteristics, including long term prognosis, have minimum amount of effect on the short-term prognosis of the patients. It still remains unclear that whether, in patients having solid tumors, metastasis has some impact during the phase of critical illness. However, no significant correlation was observed by us in between ICU survivors and non-survivors in the proportion of patients with metastatic disease. Six-month mortality was high confirming that ICU care does not modify the cancer-related prognosis.<sup>24</sup> In the absence of comparable data, we are unable to comment that whether for a cohort, such high mortality rate of six months is usual phenomenon or not. Also, whether any correlation exists between the above mentioned mortality factors and the way patients are treated in the institution. Is the admission of the patients to the ICU justifiable? Such questions are highlighted on observing a high six month mortality rate. Consideration of several factors is required in this context which includes patient's preferences and availability of alternative management strategies. Studies focusing on the utilization of the cost-benefit ration of the ICU have also been in attempted in the past literature on cancer patients. Estimation of the value and the quality of life during the time period of survival is difficult but the calculation of the costs of health care products and systems as consumed by the patients on individual basis is possible. Therefore, advanced research is required for improving the understanding of the parameters which could identify the prognostic factors for critically ill patients along with quality of life of the patient and medical and psychological needs after discharge from ICU so that patients and clinicians can be advised appropriately. Performed studies show that the benefits of palliative care and patients who had hospital-based palliative care visits spent less time in intensive care units and were less likely to be re-hospitalized. In addition, women with gynecological cancer who get palliative care have less severe

symptoms and better quality of life and their families also feel more satisfied. The objective of the palliative care is to improve the quality of life of women with gynecological cancer and their relatives, throughout the whole treatment. And palliative care only is not confined to the patient; it includes attention to the emotional needs of the primary care givers during the patient's illness and subsequently to bereavement.<sup>25-27</sup>

## CONCLUSION

From the above results, by observing the patients with gynecological malignancies who were admitted to the ICU, the authors reported relatively short-term outcomes. Also, in patients with sepsis or with septic shock, no with-holding of the invasive therapy should be done.

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