



The Fundamental Role of Postoperative Critical Care in Gynecologic Oncology Surgery: A Brief Report

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Abstract

The value of postoperative critical care in gynecologic oncology surgery is crucial for the patient's further postoperative course. For that reason different levels of postoperative care should exist, in order to identify in an early stage the possible complications and handle them properly. Strict indications of who should be admitted or not, should be defined and surgeons as well anesthesiologists should be aware of them. On the other hand, longer stay in hospital increases the likelihood of complications such as nosocomial infections and late ambulation, increasing morbidity and mortality. Therefore, longer stay in critical care units should be avoided, by predicting if patients are able to move to the general ward and later exit from the hospital. The next step is to set strict protocols for the indications of admission and decreased hospitalization by an accepted scientific team. These protocols should be applied universally in order to achieve the best possible outcomes in patients' postoperative course.

Keywords: Critical care, Gyn/oncology, Postoperative care

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Introduction

We highlight the value of postoperative care in gynecological-oncology for the management of high-risk patients. To this end, a well-organized system of different levels of postoperative care should exist to reduce the length of hospital stay (LOS) and decrease the likelihood of major complications by early recognition and correct management.

Methods

Given the clear lack of strict protocols for

intensive care unit (ICU) or high dependency unit (HDU) admission in patients with gynecological malignancies, a knowledge gap was identified after a systemic review of the literature. Our research included articles published in the MEDLINE® (1970-2019), Scopus (1980-2019) and Google Scholar (2000-2019) databases. The keywords used for the search were: "Gynecology/Oncology", "postoperative care", and "critical care".

Critical Care Units

Although the organization of critical care units varies from country to country, we recognized

some basic organizational levels. Generally, after a major operative procedure, the first unit that accepts the patient is the post-anesthesia care unit (PACU). The main role of the PACU is to ensure a good postoperative outcome and stabilize the patient before he or she is transferred to other wards or critical care units as required (1) costs and outcome of management. Materials and methods: In a cross-sectional study of intensive care admissions in Kuopio from March 1993 to December 2000, 23 consecutive gynaecological patients admitted to a mixed medical-surgical intensive care unit (ICU. It is commonly known that the follow-up in this unit, which lasts a couple of hours, may change both the decision of transfer to an ICU/surgical ICU (SICU) and the general outcome.

If the patient's condition requires a higher level of care or further hemodynamic or respiratory support, then they should be transferred to an ICU/SICU. The ICU and SICU are specialized for the management of critically ill patients (multiple organ failure, sepsis, ARDS, etc.); they are able to provide close follow-up by continuous monitoring of vital signs (heart rate, pulse rate, temperature, blood pressure, respiratory rate, diuresis, central venous pressure, etc.), and offer better hospitalization with a high number of specialized staff. The ICU team may require not only the contribution of anesthesiologists and surgeons, but also a variety of other medical specialists such as cardiologists, pulmonologists, nephrologists, etc., in addition to a highly specialized team of nurses.

The high dependency unit (HDU) is a transitional place that provides a location for patients who require close observation, treatment, and nursing care that cannot be provided in a general ward, but whose care is not at a critical enough level to warrant an ICU or SICU bed (2). The HDU would not normally accept patients requiring mechanical ventilation, although patients with CPAP (Continuous Positive Airway Pressure) and BiPAP (Bilevel Positive Airway Pressure) respiratory support are accepted with instructions and frequent clinical evaluation by pulmonologists and anesthesiologists. The general supervision of the HDU belongs to the surgical team, which also makes the decision for transferring patients to the ward or the ICU depending on their postoperative condition (1, 3) costs and outcome of management. Materials and methods: In a cross-sectional study of intensive care admissions in Kuopio from March 1993 to December 2000, 23 consecutive gynaecological patients admitted to a mixed medical-surgical intensive care unit (ICU (Table 1).

Indications for Admission

In order to make the right decision of postoperative admission to any type of critical care unit, the surgeon as well the anesthesiologist should be aware of the patient's medical comorbidities, postoperative condition, intraoperative course, and any potential

surgical complications.

To achieve better classification of pre-operative patient conditions, many systems have been developed. The most commonly used system is the American Society of Anesthesiologists' (ASA) physical status classification system, which is a widely used preoperative scoring system that describes the overall health of the patient and burden of comorbidities. This system is simple to apply and can predict the potential mortality and morbidity by classifying the patient as high-, intermediate-, or low-risk (4). Other systems can be used to clarify the potential risk of complications but offer lower predictive value. Nonetheless, none of these systems can be used to evaluate the potential need for ICU transfer.

It seems that special consideration should be given to the age of the patient due to the related likelihood of coexisting comorbidities such as hypertension, cardiovascular diseases, diabetes mellitus, pulmonary diseases, etc. (5) 1989, and Dec. 31, 1993. Fifty-three patients admitted to the surgical intensive care unit for <24 hours were compared with 32 patients admitted for >24 hours. Five preoperative characteristics (age, American Society of Anaesthesiology classification, body mass index, albumin, primary versus recurrent disease.

Patients with gynecological malignancies such as ovarian, endometrial or cervical cancer usually undergo extensive cytoreductive procedures or radical hysterectomies. Additionally, patients with ovarian cancer, in order to achieve complete cytoreduction with no residual disease, usually undergo extensive surgeries with the evacuation of large amounts of ascites and fluid shifts across different body compartments; such procedures may confer an increased risk of postoperative complications secondary to possible resection of the bowel, urinary tract or liver, with splenectomy, peritonectomy and lymphadenectomy often performed. We can clearly understand that all the above situations frequently need postoperative admission to an SICU/ICU (6-8) risk factors, and outcome of small bowel obstruction in patients undergoing radical hysterectomy as therapy for a nonadnexal gynecologic malignancy. Using a computerized search of discharge data from January 1, 1981 to January 1, 1991, 113 patients were identified who had undergone a radical hysterectomy as part of initial therapy for a nonadnexal gynecologic malignancy. Complete records were available for 98 patients who comprised the study population. For purposes of data accrual, patients were separated into three groups: radical hysterectomy without concomitant radiotherapy (Group I, n = 60.

Postoperatively, a specialized team has the important role of promptly identifying the possible complications and correcting them before they become fatal or induce permanent damage to the patient. For this reason, the SICU/ICU should be supported by doctors with different specialties. It is

Table 1: Commonly reported reasons for postoperative admission to icu – gynecology oncology surgery

Postoperative monitoring	Long operative time
Cardiovascular complications (AMI, arrhythmias)	Pulmonary complications (PE, effusion)
Comorbid illnesses	Postoperative fluid management
Advancing age	Postoperative invasive hemodynamic monitoring
Malnutrition	Mechanical respiratory support (Respiratory compromise)
Significant intraoperative blood loss requiring continued postoperative volume resuscitation	Hypotension with a need for vasoactive support

Table 2: Predictors of prolonged stay in icu/sicu/hdu

Pre-operative medical conditions	Intraoperative factors	Post-operative factors
Older age	Radical surgical procedures	Swan-Ganz catheter monitoring
Malnutrition	Major bleeding	Ventilator dependence
Obesity	Invasive hemodynamic monitoring	
Diabetes mellitus	Tachycardia requiring treatment	
Hypertension	Duration of hyper or hypotension	

important to keep in mind that patients hospitalized in the surgical ward can be admitted later to the ICU if necessary to achieve better hemodynamic monitoring, care, follow up and any other interventions required.

Predictors of Prolonged Stay

An important aspect affecting the general outcome is to predict the duration of stay in the ICU or HDU, since longer stay seems to augment the likelihood of nosocomial infections and late ambulation, leading to increased morbidity and/or mortality (2) (Table 2).

In terms of the predictors of prolonged ICU stay, we can classify them according to pre-, intra-, and post-operative factors. For the pre-operative factors, we have to consider the age, nutritional status, obesity, and coexisting comorbidities. Intraoperatively, radical surgical procedures, major bleeding, invasive hemodynamic monitoring, tachycardia (requiring treatment), and hyper/hypo-tension may lead to a longer stay in the ICU. Finally, postoperative factors such as the need of a Swan-Ganz catheter (further interventional hemodynamic monitoring), and ventilator dependence are the main factors that can extend the stay in the ICU.

Conclusion

The lack of clear and strict protocols for admission in the SICU/ICU/HDU and for the duration of stay leaves the decision to the surgeons and anesthesiologists. The surgeon should be aware of the patient's history and comorbidities, the surgical

procedure itself, and all the possible complications during the postoperative period.

Furthermore, emotional factors could influence the decision regarding ICU/HDU admission, and the desire of the surgeon to achieve the best possible treatment for their patient may lead to prolongation of hospital stay.

For these reasons, a universal and strict algorithm should be established to differentiate the patients who require SICU/ICU/HDU admission from those who do not. It is also important to note that gynecological-oncological procedures should be undergone in specialized centers by specialists in gynecology-oncology to reduce the possibility of major complications and the unnecessary use of critical care services.

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Authorship Contributions

Study concept and design: Nikolaos Thomakos, Konstantinos Koukoubanis

Acquisition of data: Konstantinos Koukoubanis, Vasiliki Bibasi

Analysis and interpretation: Konstantinos Koukoubanis

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