



## Palliative care and intensive care integration

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### Abstract

With developments in technology and in healthcare policies in Turkey, both the quality and number of applications of care have increased in recent years in intensive care units. At the same time, rates of hospital mortality have increased due to the rise in the elderly population, changes in family structure, increased urban population and easier access to health facilities. Intensive care units are the places where deaths and functional and cognitive disorders are most frequently seen. Current models where intensive care and palliative care are integrated are seen as an important component of comprehensive care for patients with critical disease and who are receiving aggressive intensive care treatment. The goal in intensive care and palliative care integration is to promote better quality, lower cost, patient and family satisfaction. The aim of this review was to highlight the importance and necessity of palliative care applications in intensive care units. It can be concluded that an increase in palliative care training, legal regulations made related to end-of-life patient care and the implementation of palliative care in intensive care unit would provide more effective use of intensive care units.

**Keywords:** Palliative care, intensive care, end of life care.

### Introduction

According to World Health Organisation (WHO) data, the global population is ageing [1]. Together with ageing, chronic systemic diseases and healthcare expenses are also increasing [2]. With an increase in chronic diseases, ischaemic heart diseases and cerebrovascular diseases have become leading causes of death [3]. With continued annual increases, it is expected that these deaths will reach 74 million per year by 2030 [4].

In previous studies, it has been reported that the majority of critical patients with many cognitive and functional impairments have died either while in an Intensive Care Unit (ICU) or after discharge from ICU [5]. When there is no treatment option for the underlying medical condition or when there is irreversible organ failure, intensive care treatments may become ineffective and ICU becomes the place where patients pass their last days before death [6]. In the light of scientific data, end-of-life care has become an extremely important subject in respect of appropriate management of patients, their families and ICU personnel [7]. To overcome loss and grief in a good way, a professional approach is required in ICU, just as in palliative care (PC). Interventions made to be able to integrate ICU and PC have become more important in

recent years [8]. Current models where ICU and PC are integrated are seen as an important component of comprehensive care for patients with critical disease and those receiving aggressive IC treatment [9].

Despite developments in the area of PC, there is as yet no consensus on the scope of PC, who it should be delivered by, to whom and when, and this has given rise to the very important topic of how PC could be integrated into the treatment and care process of critical patients in ICU. The aim of this review was to highlight the importance and necessity of PC applications in ICU.

### Overview

By defining PC in the 1980s, the World Health Organisation (WHO) recorded a great development in this field [10]. According to the WHO definition, "Palliative care is an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual" [11]. The first WHO definition of PC in 1986 stated that it was "an application made to end-stage patients when treatment approaches have been exhausted", then with a revision to the definition in 2002 "the importance of starting PC in the early stage of the disease" was emphasised. In 2009 in the USA, all the institutions related to PC gathered together at a national meeting and prepared common guidelines to be able to provide "quality PC". According to this guide, the

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importance of applying PC together with treatment approaches from the time of first diagnosis of a life-threatening disease was emphasised [12]. In Turkey, while PC previously had a place only in oncology clinics, with the Palya Turk Project, the opening of many centres independent of oncology clinics has reached a current 226 centres with 2585 bed capacity [13].

Of all deaths, 20% occur in ICU. The majority spend the last month of life in ICU and therefore, ICU is an area that requires the provision of efficient and high quality end-of-life care and PC [8]. ICU is the hospital department where patients with life-threatening trauma and severe acute or chronic diseases are supported with continuous close observation, monitorisation, advanced treatment and special equipment until the body functions return to normal. If the process is irreversible in terminal stage patients in ICU, the advances in ICU treatments together with technological developments lead to an increase in severe sequelae in patients by prolonging the process of death [6]. Although there has been an increase in recent years in the delivery of PC services to patients in hospital or care provided at home, it is not clear whether these services have met the PC requirements of these patients and their families [14-16].

With developments in technology and in healthcare policies in Turkey, both the quality and number of applications of care have increased in recent years in ICU. According to 2014 statistical data from the Turkish Ministry of Health, there was a 13-fold increase in the period 2002-2014 [17]. Furthermore, because of the increase in the elderly population in recent years, changes in family structure, increased urban populations and therefore easier access to healthcare institutions, the rates of hospital deaths have increased. In a study by Sülekli et al [18], the mortality rate of 5784 patients followed up in ICU was reported as 18.5% and this rate increased to 38.6% in surgical ICU. As the mortality rate in surgical ICU is very high, just as it is in developed countries, there is a need for support from the PC team for these patients and their families.

PC is not an alternative to ICU but is an inseparable component of the comprehensive care from the time of admittance to ICU of patients who are critical or as a result of unsuccessful resuscitation attempts. Therefore, from the time of admittance to ICU, terminal stage patients and those with severe sequelae should be identified and integrated with PC [9].

The type of death, the place and ICU mortality rates show differences according to sociological factors including the demographic structure of the country, disease patterns, existing resources and cultural, religious, economic and legal factors [19]. In Turkey, there are great differences in the understanding and attitudes of physicians towards end-of-life care and because of the lack of non-medical

regulations and laws and an undeveloped awareness of PC, patients and their families think of ICU as a place where end-of-life care is given and request advanced life support [20].

PC is an indispensable component of comprehensive care for all patients with chronic critical disease, primarily in the areas of curative or life-saving treatment. Although there has been focus on starting PC for ICU patients in the early stage and improving the quality of death, if the scope of this care is fully defined, it should be more comprehensive to include the needs of terminal stage patients besides critical care and life support therapies [21]. PC is considered within the ICU as symptom management (physical, psychological, emotional) and sharing end-of-life decisions and the burdens of caregivers and then in the range of critical diseases [22]. The basic elements are the alleviation of symptom problems, communication about the purpose of care and planning treatment with the value and preferences of the patient in end-of-life decisions (endotracheal intubation, resuscitation etc.) and family support [23].

In ICU, there is the potential for overuse of hospital resources with inappropriate, aggressive and ineffective treatments for terminal stage patients [24]. Anxiety and depression are often seen in ICU patients and their families and this is known as 'post-intensive care syndrome' and may continue for a long time after leaving ICU [9]. Families of ICU patients have been proven to have extremely high potential for psychosocial trauma following the death of the patient [25].

Therefore, effective integration of IC and PC in the treatment of acute and chronic diseases can be helpful in better preparing both patients and families for difficulties after discharge from ICU. In conclusion, the aim of successful integration of ICU and PC services is to encourage the development of better quality, lower cost, patient and family satisfaction. A study by the End-of-Life Critical Care Working Group of the Robert Wood Johnson Foundation aimed to deal with the deficiencies related to end-of-life care in ICU [26]. A total of 7 areas were identified related to end-of-life care that are used in ICU: "1) patient and family-centred decision-making, 2) communication, 3) continuity of care, 4) emotional and practical support, 5) symptom management and comfort care, 6) psychological support, 7) emotional and organizational support for the clinicians in ICU" [27].

The application of PC in ICU includes symptom management together with prognosis, patient preferences, communication related to the aims of care, planning for death and family support [28]. There are successful models in literature defining the improvement of care quality and the delivery of PC in the ICU environment [7,26,29,30]. Furthermore, three main models have been defined for the integration and improvement of PC and ICU [7,23,31].

1. Integrative model (the application in daily IC practice of PC principles and interventions by the ICU team for all patients with a critical disease and their families)

2. Consultative model (by determining the ICU patients and their families requiring PC, the PC consultants focus on increasing the participation of the patients in care and the efficacy of the care)

3. Mixed model (a combination of characteristics of the Integrative and Consultative models) [7,23].

According to previous studies, each model has its own advantages and disadvantages (Tables 1 and 2). Therefore, the selection of the optimal model should be defined according to local requirements and resources [23].

### 1. Integrative Model

The importance of the integration of PC with ICU is being increasingly understood [32]. Due to the high rates of mortality and other negative outcomes in ICU and the palliative requirements of critical patients in these units and their families, many critical care professionals consider the integration of PC principles into daily IC practices by the ICU team to be necessary [33,34]. Creutzfeldt et al [33] determined the need for PC at the rate of 62% in patients admitted to neuro-ICU. Although many clinicians know that patients and their families require PC, very few are

equipped to provide this type of care. In skills such as communication and pain and symptom management, the training and experience of trauma surgeons and other specialists is lower than is required in PC processes [31]. Therefore, in this model there is a need for the training of ICU clinicians on the subject of PC [7,35].

#### Characteristics of the Integrative model:

PC is valid for all patients with critical disease [22].

There is no need for a separate PCU as PC implementation is the responsibility of all the clinicians in ICU [7].

ICU clinicians are responsible for providing patient comfort at the end-of-life stage [7,32].

Training and clinical applications are necessary for the integration of high quality PC with ICU [22].

Communication between the ICU nurses, healthcare team and the patient and their family has been shown to have an important role in the integration of PC with ICU [29,32].

The negative effects of critical diseases and IC post-intensive care syndrome on patients and their families are reduced [36].

With PC and ICU integration, support can be provided for ICU clinicians experiencing ethical or psychological problems in patient care [22].

**Table 1.** The advantages and disadvantages of the Integrative model

Advantages	
	PC service for patients in ICU and their families is possible
	There is no need for a separate ICU
	PC will be seen as one of the basic components of the ICU
	Care performance will be developed by the systemisation of task processes in ICU
Disadvantages	
	ICU clinicians require training to improve PC knowledge and skills
	The provision of staff or resources that may be lacking in ICU
	ICU clinicians do not reduce ineffective treatments associated with the support of ICU culture
	A new PC team is required for post-ICU

Adopted by Nelson et al [1].

#### Primary reasons [2, 3]

Length of stay in ICU of >10 days  
Age > 80 years  
Life-threatening comorbidity  
Diagnosis of active stage 4 malignancy (metastatic disease)  
Intracerebral haemorrhage  
Mechanical ventilation support

#### Alternative reasons [3-5]

Family requirement  
Ineffective medical treatment  
Mean survival expectation < 6 months  
ICU stay > 1 month  
Multiorgan failure (3 or more organs)  
Global cerebral ischaemia  
Advanced stage dementia  
Admittance to >3 ICUs  
GCS = 3 or GCS < 8  
PaO<sub>2</sub>/FiO<sub>2</sub> < 300  
Thrombocyte count < 100,000/mm<sup>3</sup>,  
Acute elevation in creatinine > 2 mg/dl,  
Acute elevation in total bilirubin > 2 mg/dl,  
Use of vasopressor

**Table 2.** Advantages and disadvantages of the consultative model

Advantages	
	Multi-disciplinary team and interventions made by the PC specialist
	No requirement for additional training for ICU as a PC specialist is present
	Uninterrupted continuity of PC before, during and after ICU
	Facilitates the transfer to PCU for end-of-life care
Disadvantages	
	Requires a separate PC service with sufficient personnel and other resources
	PC clinicians may be viewed as an 'outsider' in the ICU
	PC clinicians may not be familiar with the nursing staff and functional equipment in ICU
	There may be overlaps and/or differences in the interventions of the PC and ICU teams
	PC specialists must establish effective communication at the level of the patient and their family
	There may be interruptions/disruptions in the care
	There may not be sufficient effort by the IC team to develop PC skills

Adopted by Nelson et al [1].

### Consultative Model

The aim of this model is to increase the participation of consultants and the efficacy of PC in the care of patients with a poor prognosis in ICU and their families (e.g., those with severe functional and/or cognitive impairment or death in hospital). In the context of the PC Development in IC Units Project, several authors have recommended meeting the ICU specific needs by selecting previously published tests for PC consultation of critical patients [7,27]. To meet the PC needs of patients with critical disease in ICU and their families, there must be personnel specialised in the field of PC, with sufficient knowledge and skills. In this approach, the ICU clinicians request PC consultations from PC specialists, but it has been reported that the requirement of PC consultation by ICU clinicians or acceptance of the need could take more time [37]. It could be useful for the PC consultants to participate in the ICU daily patient visits in respect of showing regular collaboration and benefits. In a previous study, it was reported that early identification of PC requirements was necessary to optimise end-of-life care of ICU patients and reduce hospital deaths [38]. In another study, which examined the effect of PC consultation on the length of stay in hospital of high-risk ICU patients, it was reported that the length of stay of patients with PC consultation in ICU was significantly shorter with no significant difference on mortality rates or discharge [39].

Although the most common cause for PC consultation in ICU is symptom management, PC has been reported to provide more comprehensive care with spiritual support together with the provision of better symptom management [40].

The PC Development in IC Units Project recommended meeting the ICU specific needs by selecting previously published tests for PC consultation of critical patients. According to this Project, the situations requiring PC consultation are given under five headings [27,37].

1. Stay in ICU of 10 or more days
2. Multisystem organ failure involving 3 or more systems
3. stage 4 malignancy,
4. Following cardiac arrest,

5. Intracerebral haemorrhage requiring mechanical ventilation support"

Primary and alternative reasons for PC consultation in ICU

### Mixed Model

The implementation of the mixed model, which uses both previous models, is accepted as the most appropriate model. The most important factors in the success of this implementation have been reported to be the accessibility of PC specialists and the suitability and desire of the PC team to work together with the ICU team [43]. The Mixed model approach is implemented in many ICUs [7]. For PC consultants to work in a compatible way with the ICU team, each institution must define its own working principles [7,23]. In ICU and PC integration, there must be multidisciplinary teamwork with nurses, social services and spiritual care specialists and other supporting teams (dietician, physiotherapist, etc.) under the leadership of ICU and PC clinicians. For successful implementation, it is important that the required adjustments are made over time to achieve balance within the team [7].

Goepf et al reported that this model could increase the skills of all clinicians in the healthcare system and meeting the PC needs of the patient and their family would increase satisfaction by providing a close relationship and developing skills. The model is strengthened with the inclusion of specialised PC clinicians and assistants. It may also assist in controlling costs by reducing the number of routine cases managed by specialists [43]. Although the necessity for the integration of PC in ICU and in what directions ICU could be developed by PC have been explained, developed guidelines in literature for successful application in practice are limited. Of all hospital units, as ICU is the unit with the most losses or where subsequent functional and cognitive impairments are observed, successful integration of PC services into the ICU could provide better quality at lower cost and with better patient and family satisfaction [45].

### As a result of the integration of PC into ICU;

The length of stay in ICU and the hospital is shorter [2,4,6,7],

PC services have shown a reduction in hospital admittances [2,7]

Increased patient satisfaction [8],

Reduced mortality rates [9,10],

Fewer days on ventilator support [1,11,12],

Ineffective treatments such as parenteral nutrition are reduced and with a reduction in interventions, ICU costs are reduced [46,50]

PC integration into ICU encourages the increase of ICU resources for those in need [41,50]

With PC integration, at the same time as improving the quality and content of communication of clinicians, there has been seen to be an effect on the end-of-life decisions by increasing the spiritual welfare and satisfaction of the patient and their family [8,24].

Post-traumatic stress disorder and family anxiety have been seen to be decreased and family satisfaction increased [45].

#### Barriers to the integration of PC and ICU

Despite the many advantages of PC and ICU integration, several barriers have been defined in implementation. As a consequence of these barriers, PC applications cannot be made to patients in ICU and even if all the conditions are met for the implementation of PC, only a small proportion of the patients who need PC can benefit from these services. Goepp et al [44] determined that there are barriers in the areas of policy, implementation and training in PC application in ICU. The Robert Wood Johnson Foundation Consensus Group determined that there were deficiencies in communication between the ICU team and the patients and their families in respect of the aims of end-of-life care, maintenance of treatment and legal responsibilities and these were reported to originate from insufficient training [51]. Apart from these barriers, the lack of knowledge of the patient and their family of legal responsibilities related to life-maintaining treatments, and unrealistic expectations of the prognosis or the effect of IC treatment have been seen to play an important role in PC integration [52].

Inadequate or incorrect prognostic scoring used by ICU clinicians, not taking life expectations into consideration and unrealistic emotions and opinions of the family such as pleading to save the patient or death must not be ignored. Together with the reduced costs of patient care and increased family satisfaction, with the integration of PC into emergency medicine, benefits have been determined in another study such as overcoming the unnecessary acceptance into ICU of patients for whom no benefit can be provided and obstructions from the perspective of PC and emergency medicine management have been defined as the aggressive care culture at the end-of-life stage and an insufficient perception of the field of PC [53]. In the USA, Aldridge et al [48] determined barriers to PC not only in ICU, but also in other areas as defined by WHO and these were reported under three headings.

“(1) Training: a deficiency in teaching and training in the field of PC and inadequate perception of PC in end-of-life care

(2) Implementation: insufficient healthcare personnel specialised in the field of PC. Non-adoption of the necessity of PC as a cultural construct and identification of the patients requiring PC

(3) Policy: non-integration of PC into the healthcare system, insufficient funds assigned for research and insufficient reimbursement for PC” [10].

#### Conclusion

The integration of PC into ICU aims to provide better quality care at lower cost with increased patient and family satisfaction. Although there are barriers, it has been proven in literature that benefits and better results emerge from this integration. PC has been on the healthcare policy agenda for the last 10 years and is included in the scope of National Health Insurance payments, defined as a special services group. Although there are currently positive developments in the field of PC, they are still not sufficient. There are a great many barriers to be overcome in the integration of PC with ICU. As there are no legal regulations in Turkey related to end-of-life care (Do Not Resuscitate, withdrawal, withholding) and because of the sociocultural structure, even if there seems to be full support in ICU for end-stage patients, the most important obstacle in society and especially in healthcare personnel is the lack of awareness of PC. In conclusion, an increase in PC training, legal regulations made related to end-of-life patient care and the implementation of PC in ICU would provide more effective use of ICU.

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