Palliative care in acute kidney injury patients in the intensive care unit

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ABSTRACT

Patients with acute kidney injury (AKI) in the intensive care unit (ICU) are often suitable for palliative care due to the high symptom burden. The role of palliative medicine in this patient population is not well defined and there is lack of established guidelines to address this issue. Because of this, patients in the ICU with AKI deprived of most comprehensive or appropriate care. The reasons for this are multifactorial including lack of palliative care training among nephrologists. However, palliative care in these patients can help alleviate symptoms, improve quality of life, and decrease suffering. Palliative care physicians can determine the appropriateness and model of palliative care. In addition to shared decision-making, advance directives should be established with patients early on, with specific instructions regarding dialysis, and those advance directives should be respected.

Implication for health policy/practice/research/medical education:
The role of palliative medicine in patients with acute kidney injury in the ICU is not well defined and established guidelines are lacking. Palliative care in these patients can help alleviate symptoms, improve quality of life, and decrease suffering. Multidisciplinary approach helps in establishing shared decision-making and advance directives early in the course of illness, with specific instructions regarding dialysis, and those advance directives should be respected.


Introduction

Palliative medicine has a well-established role in many chronic disease states and principles of palliative care are well established for the management of end-stage disease symptoms. However, the role of palliative medicine in the field of nephrology is not well-defined and symptomatic patients with acute kidney injury (AKI) especially in the intensive care unit (ICU) may not receive the most comprehensive or appropriate care surrounding their illness. A multitude of factors contribute to this; lack of palliative care training among nephrologists, lack of epidemiological research on outcomes and scarcity of established palliative care guidelines for management of AKI patients in the ICU results in substandard level of care. However, multidisciplinary approach by involving palliative care physician early in the course of illness may help in comfort care of AKI patients in the ICU. In this review, we discuss the use of palliative medicine in this specific patient population.

Materials and Methods

For this review, we used a variety of sources including PubMed, Embase, Scopus and directory of open access journals (DOAJ). The search was performed by using combinations of the following key words and or their equivalents; palliative care, acute kidney injury, intensive care unit, dialysis and advance directives. Manuscripts published in English as full-text articles and or as abstracts...
were considered for this review.

**Palliative care in acute kidney injury in ICU**

One of the main reasons why palliative care is rarely offered to AKI patients in ICU setting is the lack of palliative medicine training in most nephrology programs. As a result, most nephrologists may not feel comfortable or compelled to provide these services at an appropriate time. To help solve this issue, nephrology fellows in the future during their training should receive some exposure to palliative care especially in the ICU setting. There are well-established prognostic indicators from multitudes of epidemiological research on disease progression and outcomes in end-stage renal disease (ESRD) patients. Due to this, nephrologists frequently consult palliative medicine in situations when it may be appropriate for the ESRD patient to withdraw from chronic dialysis. However, AKI patients on dialysis in the ICU may not have palliative care offered at an appropriate time due to lack of guidelines/recommendations to make clinical judgment. The following discussion may serve as guide to nephrologists for providing palliative care to patients with AKI in the ICU.

**Models of palliative care**

Three palliative care models have evolved over two decades with an aim to improve quality of care and reduce suffering in the ill patients (1). These models of care may be considered in the ICU setting for AKI patients.

**Conventional model of care**

This dichotomous model offers patients either curative/disease specific care or palliative care but not both simultaneously, which leads to sudden transition from curative to palliative care without enough transition time (Figure 1) (1).

**Comprehensive model of care**

Although, this model of care is dichotomous, it offers both curative/disease specific and palliative care simultaneously to the patients with a gradual increase in palliative care over time and slow withdrawal of curative/disease specific care (1). However, both of these dichotomous models of care have the disadvantage of providing one model of care at the cost of the other (Figure 2) (1).

**Conceptualization model of care**

This model of care classifies all the interventions and options of care based on goals allowing more flexible management (1).

1. **Care-seeking care**- aims to eliminate the underlying disease/medical problem with medical treatment.
2. **Life extending care**- aims to prolong the life in chronic disease states with the help of medical treatment while also enhancing quality of life.
3. **Quality of life and comfort maximizing care**- aims to improve function, reduce suffering and enhance quality of life, and these interventions may also prolong life.
4. **Family supportive care**- aims to address the grief and emotions of the family members from the time of diagnosis to past death.
5. **Healthcare staff supportive care**- aims to address the grief and emotions related the management of these patients.

**Shared decision-making and advance directives**

Patel et al described outcomes and decision-making process for nephrologists in the management of AKI in the ICU setting (2). Expected outcomes and prognosis for patients with AKI remains poor with the mortality rate of 28%-90% (3). The highest prognostic indicators for mortality were concomitant multi-organ failure, mechanical ventilation, liver-failure, and malignancy (2-5). These prognostic indicators aid physicians to offer palliative care at an appropriate time in this patient population. Furthermore, the use of the RIFLE criteria to establish predicted mortality was around 80%-85% and that, while not perfect, could still be an acceptable tool to help establish prognosis for AKI patients in the ICU (2,6). However, in those patients who survive, 70%-90% have a recovery of kidney function (5,6). Hence RIFLE criteria can be considered when making clinical decisions regarding the discontinuation of dialysis in AKI patients.
Palliative care in AKI

(5,6). The RPA/ASN guideline, Shared Decision-Making in the Appropriate Initiation of and Withdrawal from Dialysis, helps to establish general recommendations in certain situations in which dialysis may be discontinued (7). These situations are:

- A patient with full capacity for judgment who asks for dialysis to be discontinued
- A patient who lacks capacity but previously expressed a desire not to continue dialysis
- A patient without capacity but power of attorney asking to withdraw dialysis
- A patient who has irreversible, profound neurological impairment.

In these situations, it is appropriate to consult palliative care and develop a plan to proceed with the discontinuation of dialysis.

Advance directives also play an important role in the clinical decision-making. The presence of an advance directive gives clinicians a guide as to what patient wishes are, and those decisions should be respected (2). However, one study involving cancer patients in the ICU demonstrated that the presence of an advance directive did not alter decision-making regarding life-supporting interventions (8). This alone is concerning; however, this issue becomes more complex when it is considered that most advance directives typically do not directly address acute dialysis in the setting of AKI. Nephrologists are often left without a guide for advance directives to determine continuity of care in this specific setting.

Cost effectiveness of renal replacement therapy

Cost is another factor, which must be considered in these patients. The SUPPORT trial helped to establish cost effectiveness of AKI treatment involving 490 patients (9). This trial determined that overall cost of renal replacement therapy per quality-adjusted life-year in AKI patients in the ICU was $128,200 with $274,100 for patients in worst prognostic group and $61,900 for patients in best prognostic group; however, it surpassed the cost-effective limit of $50,000 per quality-adjusted life-year (9). In another study by Gopal et al, the outcomes of 85 survivors of multi-organ failure who required the use of renal replacement therapy in ICU found that the cost of each year of survival was $50,000, and majority of survivors felt that their treatment was worthwhile and their quality of life was satisfactory (10). With a high mortality rate of up to 90% for ICU patients with AKI (3), the ethical principle of justice and equitable distribution of resources must be considered when treating these patients. In these situations, a palliative care consult would provide a more cost-effective treatment apart from better symptom management and a better quality of life.

Recommendations

AKI in the ICU patients has a host of symptoms, including pain, pruritus, anorexia, sleep disturbances, fatigue, sexual dysfunction, and others (11). The appropriateness of palliative care in AKI patients in the ICU will be judged based on the complications and prognosis. However, a study done by Aslakson et al establishes the role of palliative care in the ICU and determined that “palliative care is increasingly accepted as an essential component of comprehensive care for critically ill patients, regardless of diagnosis or prognosis” (12). AKI in the ICU comes with a host of complications regarding treatment decisions. Among the most difficult decisions a physician must make is whether to withdraw dialysis from these patients. Due to difficulty in establishing prognosis, this decision may not come lightly. Following is a list of recommendations and justifications for the palliative care in these critically ill AKI patients:

1. Palliative care is appropriate in patients with AKI in the ICU

Patients with AKI in the ICU are often appropriate for palliative care due to the multitudes of symptoms they can experience. These patients have historically not been provided this service due to multifactorial reasons. However, palliative care in these patients can help to alleviate problematic symptoms, improve quality of life, and decrease suffering. Palliative care physicians, with the teamwork of the patient’s nephrologist, are equipped with the appropriate training and knowledge to make determinations regarding the appropriateness of palliative care for individual patients. Either comprehensive or conceptualization model of care is recommended.

2. Establish an advance directive with patients early on, with specific instructions regarding dialysis, and respect those advance directives

This will help to establish patient wishes early on, and with the ethical respect of these wishes, a physician can make a sound clinical judgment regarding the withdrawal of dialysis as well as the establishment of palliative care in that patient (2).

3. Discontinuation of dialysis should occur in the situations outlined by the RPA/ASN guidelines

The RPA/ASN guidelines help to establish evidence-based ethical considerations when making the clinical decision to withdraw dialysis. Clinicians can use these guidelines combined with informed consent to educate patients and patient advocates about the risks, benefits, outcomes, and prognosis for each patient’s condition (7).

Conclusion

AKI patients in the ICU have a host of symptoms and most often suitable for palliative care that can help relieve symptoms, improve quality of life and reduce suffering. The appropriateness of palliative care in this patient population is determined with the teamwork of patient’s nephrologist and palliative care physician.
Shared decision-making and advance directives play an important role in the management and guides physician as to what patient wishes are, and those decisions should be respected. Either comprehensive or conceptualization model of palliative care is recommended for these patients.

Authors' contribution
All authors contributed equally to the manuscript, with regards to database searching and preliminary write up. All authors have read and approved the final version of the manuscript.

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References

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