Intensive Care Med (2005) 31:1145–1147
DOI 10.1007/s00134-005-2682-5

EDITORIAL

Wilfred Druml

Long term prognosis of patients with acute Renal Failure: Is intensive care worth it?

Received: 23 June 2005
Accepted: 3 July 2005
Published online: 28 July 2005

This editorial refers to the article available at http://dx.doi.org/10.1007/s00134-005-2681-6

W. Druml (✉)
Division of Nephrology, Department of Medicine III,
Vienna General Hospital,
Währinger Gürtel 18-20, 1090 Vienna, Austria
e-mail: wilfred.druml@meduniwien.ac.at
Tel.: +43-1-404004503
Fax: +43-1-404004543

One of the changing paradigms of modern intensive care medicine is a redirection of the major aims of intensive care therapy from a short-term to a long-term perspective: It is not only important whether the patient survives an ICU stay but what long-term prognosis, what quality of life, what functional recovery the patient has. Nevertheless, very little is known about the long-term outcome of ICU patients in general and patients with different diseases. Thus it is very welcome that an increasing number of studies are not only evaluating hospital related outcome end-points, such as ICU/hospital length of stay and survival rate, but focus on long-term prognosis and quality of life after the ICU admission (for review see [1]).

Acute renal failure (ARF) is a clinical syndrome associated with a notoriously grave prognosis [2]. Survival rates have not changed considerably during recent decades, and there are even studies showing that the outcome has not only not improved since the introduction of modern renal replacement therapies but rather worsened. Obviously this is a misinterpretation of the fact that ARF presents a complication occurring in a broad pattern of underlying pathologies, and outcome necessarily must be linked to the precipitating disease process [3, 4]. The spectrum of underlying pathologies has fundamentally changed during the past decades, with the fraction of patients with multiple organ dysfunction syndrome continuously increasing. Patients developing ARF nowadays, for example, differ from those in earlier periods; they are much sicker and much older. One should not speak of the prognosis "of ARF" but rather the prognosis "of the patient with ARF" to stress this point. Nevertheless, depending on the clinical setting and case mix the fact remains that mortality is distressingly high, and in various studies analyzing patients with ARF requiring renal replacement therapy up to 80% of patients have died.

This ominous prognosis is clearly associated with the severity of the underlying pathology leading to ARF. A plethora of studies have confirmed this fact and have shown that outcome of patients with ARF is closely connected with severity of disease as assessed by a broad range of parameters, such Acute Physiology and Chronic Health Evaluation and Simplified Acute Physiology Score, the necessity of ventilation therapy, the presence of sepsis, and the plasma concentrations of cytokines [5]. A large number of risk scores and prognostic scores have been developed by various groups [6].

However, ARF is not only an indicator of severity of the underlying disease process (and thus outcome). In recent years an increasing number of investigations have clearly demonstrated that ARF, beyond to being an indicator of the severity of disease, exerts a profound impact on prognosis and has an independent effect on mortality [7]. We must recognize that ARF is associated with fundamental alterations in practically all physiological functions and organ systems [8]. Of special importance is the massive impact on immunocompetence, and most patients with ARF die of severe infections/sepsis. Thus patients with ARF are not dying (only) *with* but (also) *of* ARF.

Moreover, discussion of the prognosis of ARF must also regard the question of "renal prognosis," whether ARF will resolve, or whether ARF will convert into a

chronic renal problem. However, most studies show that renal recovery is generally excellent, and that fewer than 5–10% of cases with ARF ultimately convert to chronic renal failure [9, 10]. Preexisting impairment of renal function, an "acute on chronic" renal failure, is major risk factor for evolution of chronic renal failure [11]. Moreover, when intrinsic renal diseases such as glomerulonephritis of hemolytic uremic syndrome are the cause of ARF, renal prognosis becomes less favorable. Finally, if a patient needs chronic renal replacement, this has a major impact on life expectancy in comparison to the general population.

What is the case of the patient, however, who is treated in hospital or an ICU who develops ARF after he leaves hospital? What is his long-term prognosis? Does the fact that he was treated for ARF affect his further life expectancy? The present study by Ahlström and coworkers in *Intensive Care Medicine* analyzes this problem [12]. These authors found a very poor long-term prognosis of only 30% after 5 years, a much lower survival rate, and also a rather low health-related quality of life compared to the general population. However, regarding the patient's own perception of his life conditions satisfaction was quite good. These results do not accord uniformly with previous evidence [13, 14, 15] but are generally in line with findings both in ARF patients and in various other groups of ICU patients [1].

Certainly this study rather overestimates the potential negative effects of the hospitalization for ARF. Preferably hospital mortality and not 28 day mortality should have been assessed because many patients with ARF have a complicated course of disease lasting longer than 4 weeks and may actually die in the hospital after this time period. Moreover, it is not clear whether in ARF survivors the disease process leading to ARF was also considered. Several, especially older, patients could have been transferred to other hospitals or nursing homes for further care.

An important shortcoming of many studies in the field of long-term prognosis is lack of knowledge regarding the quality of life *before* the ARF precipitating event and before the ICU stay. It cannot be assumed that the quality of life is better after than before developing ARF. There is evidence that, many patients requiring intensive care actually have a lower quality of life already before coming to the hospital [16].

This is also related to the question of the type and severity of preexisting diseases. The age of patients admitted to ICUs is constantly increasing. Most patients treated for ARF have chronic health problems such as diabetes type II, congestive heart failure, and hypertension. These preexisting disease processes increase the probability of acquiring ARF and also affect life expectancy and quality of life as compared to a healthy general population [14].

Actually what the present study by Ahlström and coworkers shows is not good news and will further contribute the current discussion of the futility of intensive care medicine. In line with other investigations there is growing evidence that the number of patient years gained is quite low, as is health-related quality of life, especially in older patients. On the other hand, we must accept that from the patient's perspective most would again choose an ICU stay even if quality of life is quite reduced and the prolongation of life time quite low. Moreover, the costs per both life-year and quality-adjusted life-year gained are within generally accepted limits for other potentially life-saving treatment [17].

So is there room for desperation? Basically, no. Without considering the limitations noted above, this study certainly overestimates both the negative impact of ARF and of ICU therapy in general on long-term outcome. Moreover, with the patient's perspective in mind, the ultimate success of therapy actually is quite satisfying. Nevertheless, a critical reflection on what we are doing in the ICU is mandatory. Certainly it will become increasingly important to carefully scrutinize which patients should be treated in an ICU, how far we should go with therapy, and in what circumstances end-of-life decisions should be considered.

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