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### The Aging of our ICU's Part III

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**In our third and final instalment in a series of articles in ICU Management concerning the impact of the aging population in our ICUs, we focus on an important subgroup whose special requirements in the critical care environment need to be addressed: The frail elderly.**

The frail elderly is a particularly problematic group of patients. Multiple definitions existed over the years. Frailty concerns the combined effects of the natural aging process and medical comorbidities. Frailty is a global problem, with incidence rates approximating 7% (Fried 2007; Avila-Funes 2008). Incidence increases with age, approaching one-third of those patients more than 90 years old (Walston 2002). Fried et al. in 2001 defined frailty by a combination of 3 or more of the following factors:

- Unintentional weight loss (10 pounds or more in a year);
- General feeling of exhaustion;
- Weakness (as measured by grip strength);
- Slow walking speed, and
- Low levels of physical activity.

They found that frailty was a reliable predictor of a general decline in health. The frail were prone to falls, deteriorating mobility, disability, hospitalisation and death. The increased incidence of functional decline after hospitalisation exhibited in this group may be due to iatrogenic illness, immobility, disturbed sleep-wake cycles, an unfamiliar environment, and inadequate nutrition (Palmer 1998). Fried also found that frailty was highly associated with cardiovascular disease, low education and poverty. Cognitive dysfunction, psychiatric problems and pre-existing functional impairment further increase the risk of decline during hospitalisation (Palmer 2004). This functional decline leads to increased hospital mortality.

Identifying these patients at or before admission then becomes very important. There are several scales which attempt to quantify frailty. They generally contain elements relating to cognition, functionality and general health status. In one study of the Edmonton Frail Scale (EFS), scores greater than 7 were associated with increased complications and decreased chance of being discharged to home (Dasgupta 2009). The EFS is only one of several frailty screening tools which uses the clock drawing and the timed get up and go tests for cognitive and functional state as well as questions on general health status and independence, mood, nutrition/weight loss, medications, continence and social support to total 17 possible points, greater totals signifying increased frailty. However, in many of our trauma centres and ICUs, this information may be hard to come by given the clinical state of the patient and ability to give history or perform the tasks involved. Simple inquiry regarding functional status and age may serve to identify patients at risk.

We spoke earlier in our series about the use of comprehensive geriatric assessments and a different paradigm for preoperative clearance. This is particularly important for the frail elderly. In addition, ICU management becomes more difficult. For instance, post-operative pain management requires more attention to detail, with starting dose adjustments of one-third to one-half normal adult dose necessary in the frail elderly.

Careful management of delirium can also impact the care of the frail elderly. The incidence of delirium in the elderly is 10-15% at admission, 21-63% after hip fracture surgery and 20% after gynecologic oncology surgery (Maldonado 2008). Pitkala et al. found that delirium in the frail elderly was an independent predictor for mortality at 1 year and for permanent institutionalisation. Prevention and prophylaxis are best accomplished by treating associated diseases, being vigilant for occult infection, judicious medication usage, including avoidance of anti-cholinergic drugs, adequate treatment of pain and alteration of environmental factors in the hospital itself. Prophylactic haloperidol may reduce severity and duration of delirium in the elderly, but does not prevent its development (Kalisvaart 2005). Low dose haloperidol, 0.5 to 1 mg IV, can be used for treatment of delirium with caution until agitation is controlled. One must recognise the extended half-life of haloperidol in the elderly, up to 72 hours.

There is no specific treatment for frailty. However, exercise, stretching, resistance training and tai chi have been shown to have beneficial effects on frailty. Exercise three times a week for up to 6 months has improved frailty markers (Binder 2002; Wolf 1996; 2003). However, true outcomes studies have not been done to show any difference in morbidity and mortality. Therefore, the use of exercise preoperatively may be of benefit and deserves further study.

Since the frail elderly are at such increased risk for further functional decline, postoperative complications and mortality, palliative care is an important adjunct in the care of this fragile group of patients. Practitioners must be attuned to when the threshold from curative to palliative care has been crossed. Patient wishes are of paramount importance and if the clinical status precludes direct communication of those wishes by the patient, then advance directives and/or appropriate surrogate decision-makers must be sought out. Symptom management, relief of suffering and comfort are the mainstays of treatment. Palliative care should be in the toolbox of all ICU practitioners and appropriate consultation should be initiated when necessary and available.

As a final consideration in our series on the aging of our ICUs, it is important to remember the goals of care for the elderly patient when examining treatment options. In the Principles and Practice of Geriatric Surgery, Dr. Zenilman sums the goals up quite effectively: maximise or maintain potential life span, maintain dignity of life, maximise self-esteem, maximise independent function, minimise dependence and relieve suffering with particular attention to pain. When cure might not be possible, palliation and comfort are just as important (Rosenthal 2001). If we as practitioners keep these goals in mind, then the result will be the best care possible for our elderly patients and their families.