Clinical frailty scale in cardiac patients – the role of exercise.

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Editorial

In the last years, the World Health Organization showed an strongly increased in ageing population in the world and in 2030 approximately 11% will be considered old-aged (almost 1 billion) [1]. Ageing process are strongly related to frailty, which is considered a progressive condition characterized by extreme vulnerability, reduced mobility and independence, with higher hospitalizations, reduced cognition and mortality [2-4].

In order to recognize and measure frailty in elderly, Rockwood et al. developed a simple scale. In this line, a several of papers have been used the Clinical Frailty Scale to demonstrate that ageing could worsen outcomes in these patient populations. Moreover, frailty could be considered as a strong independent predictor of disability, worse surgical outcomes and mortality [5-6].

According to Chen, life expectancy has been increasing steadily and age is an important risk factor for all forms of cardiovascular diseases [7]. Moreover, the prevalence of frailty in patients of all ages presenting for surgical procedures is quoted at between 4.1 and 50.3%, including cardiac surgeries [8]. In recent years it has been suggested that cardiac patients with frailty have worse outcomes, increase in mechanical ventilation time, length of hospital stay and mortality when compared to cardiac patients without frailty [6] [9,10]. Recently our group demonstrated that pre-frail patients have more in-hospital outcomes after cardiovascular surgery compared to patients without frailty, suggesting that early stages of frailty could lead to an increase in cardiac events [11]. In addition, Kim et al. recently demonstrated that frailty status might predict mortality at 6 months or later after major cardiac surgical procedures and functional decline after minimally invasive cardiac surgery [12].

On the other hand, frailty could be reversible when treated in early-stages interventions, as exercise. It is well recognized that physical inactivity represents a major risk factor for frailty and disability in elderly [13]. In contrast, the exercise intervention is effective and might delay the transition of pre-frail to frail [14]. In addition, exercise in pre-operative period could also contribute to better recovery in the intensive care unit and to prevent adverse outcomes. However, it remains unclear whether exercise in pre-operative period could reverse adverse outcomes in cardiac surgery in elderly patients.

Exercise could play an important role in pre-frail or frail patients, both in-hospital and out-hospital. It is clear that ageing also courses with sarcopenia, which, per se, increases the adverse events. It has been suggested that exercise, nutrition, and psychological interventions may all have positive impacts on frailty and sarcopenia. Recently Chan et al.demonstrated that an integrated care programme improved frailty and sarcopenia status, but the authors did not performed the exercise benefits in post-operative patients [15].

In this context, Clinical Frailty Scale should be applied in rehabilitation centers, since it is well established that early exercise could slow the progression of cardiovascular disease [15]. The early frailty recognition could ameliorate optimal care and treatment and consequently change the prognosis in elderly individuals [6]. Recently, Marzetti et al. suggested that regular physical activity, in combination with appropriate multidisciplinary support, is the most effective strategy for improving sarcopenia and physical function and preventing frailty [16].

In conclusion, exercise/rehabilitation programs could prevent and reduce frailty and disability in elderly patients. However, it remains unclear whether the early exercise program during the pre-operative in frailty and pre frailty patients is effective in reducing adverse events, re-hospitalization and mortality. In addition, future studies should address the respiratory muscle training in these patient populations.

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