

Postoperative and Rehabilitation Outcome after Abdominal Aortic Aneurysm Repair in the Elderly

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In the last decade, postoperative management and rehabilitation of patients undergoing abdominal aortic aneurysm (AAA) repair has been one of the main endpoints in several research studies. Recent data underline that the urgency and type of procedure (open surgery or endovascular repair) are determining factors for postoperative outcomes after AAA repair, especially in the elderly [1].

Regarding the urgency of the operation, recent data show that in-hospital deaths are significantly higher in octogenarians during an emergency AAA repair in comparison to elective cases [2]. However, a high percentage of survivors over 80 years of age are able to maintain their previous lifestyles with the independent activities of everyday life. AAA surgical treatment in octogenarians has comparable results with younger patients, in either elective or emergency settings [2].

Regarding the type of AAA repair, patients undergoing EVAR (Endovascular Aneurysm Repair) show lower in-hospital mortality, a shorter hospital stay, and a reduced need for institutional rehabilitation, compared to open surgery [3]. Operation time, blood loss and length of stay in the intensive care unit (ICU) are lower after EVAR as well, whereas open surgery and advanced age are independent predictors of need for post discharge care [1,3].

Recovery (activity level and convalescence days following surgery) is more rapid, and early functional outcomes are markedly improved after EVAR, while there is no difference in late functional outcomes between the two types of repair [1,3]. Patients report that health related quality of life after AAA repair is significantly impaired in the early postoperative period, especially for elder patients [4]. Patients who underwent EVAR and have limited complications should be able to proceed with exercise recommendations as outlined by the American College of Sports Medicine (ACSM) and the American Heart Association (AHA) [5]. These guidelines were updated in 2007 to include either moderate or vigorous aerobic exercise, strength, and balance exercise, as well as a consistent physical activity plan.

Elder patients present with worse co-morbidities. In elective open AAA repair, severe complications such as myocardial infarction, pneumonia and acute renal failure can be observed in about 60% of patients [1]. One of the usual complications is the postoperative Venous Thromboembolism (VTE), despite the systematic prevention with anticoagulants [6]. Complete thromboprophylaxis with thigh-length compression bandages or stockings, early mobilization and daily subcutaneous injection with Low Molecular Weight Heparins (LMWH) reduce the risk. Concerning Chronic Obstructive Pulmonary Disease (COPD), which shows also a high incidence among elder patients, latest data conclude that epidural anesthesia and analgesia improve the postoperative respiratory function compared to general anesthesia and systematic analgesia, with physiotherapy playing a significant role for the postoperative course of recovery [7]. A recent study from Japan suggested that perioperative physiotherapy including deep breathing, early mobilization and endurance training helps preventing postoperative complications such as pulmonary complications, ileus or delirium [8]. According to the recent guidelines of the European Society of Vascular Surgeons (ESVS) for the management of abdominal aortic aneurysms, cessation

of smoking and preoperative physiotherapy or exercise programs improve the lung function and reduce postoperative complications as well (Level 2a, Recommendation A) [9].

Recently, the application of ERAS (enhanced recovery after surgery) protocols in open AAA surgery led to a significantly shorter time to restarting oral consumption and shorter postoperative stay compared to congenitally managed patients and to a decrease of medical costs [10]. These protocols have resulted in a decrease in mortality and morbidity after AAA repair, especially for the elderly. Furthermore, the fast-track programs lead to a substantial decrease of pulmonary, cardiac and renal complications, achieving a safe mobility at the same time [11]. These programs show a lower need for assisted postoperative ventilation compared to traditional treatment, and lead to a shorter median length of stay in the ICU as well [11].

In conclusion, EVAR is a minimally invasive surgery that promotes early mobilization and a return to normal function in comparison to open procedures. Physiotherapists should consider complications, co-morbidities, and issues related to reconditioning in approaching elderly patients who underwent AAA repair. Disability should not occur as a result postoperatively, as any impairment and functional limitations should resolve with physiotherapist intervention. Early investment in a precautionous approach to this type of patient can assure safe arrival at the level of function needed to follow aforementioned guidelines.

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Received October 04, 2013; Accepted October 05, 2013; Published October 09, 2013

Citation: Martinakis V, Galyfos G, Karanikola E, Filis K (2013) Postoperative and Rehabilitation Outcome after Abdominal Aortic Aneurysm Repair in the Elderly. *J Nov Physiother* 3: e130. doi:10.4172/2165-7025.1000e130

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