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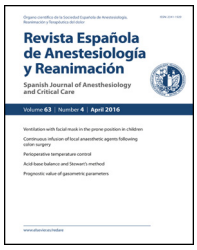

ORIGINAL ARTICLE

Physical activity and frailty as indicators of cardiorespiratory reserve and predictors of surgical prognosis: General and digestive surgery population characterization☆

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KEYWORDS
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Abstract
Introduction: Frailty and low physical activity and cardiorespiratory reserve are related to higher perioperative morbimortality. The crucial step in improving the prognosis is to implement specific measures to optimise these aspects. It is critical to know the magnitude of the problem in order to implement preoperative optimisation programmes.
Objective: To characterise surgical population in a university hospital.
Methods: All patients undergoing preoperative evaluation for abdominal surgery with admission were prospectively included during a 3-month period. Level of physical activity, functional capacity, frailty and emotional state were assessed using score tests. Additionally, physical condition was evaluated using *5 Times Sit-to-Stand Test*. Demographic, clinical and surgical data were collected.
Results: One hundred and forty patients were included (60 ± 15 yr-old, 56% male, 25% ASA III or IV). Forty-nine percent of patients were proposed for oncologic surgery and 13% of which had received neoadjuvant treatment. Seventy percent of patients presented a low functional capacity and were sedentary. Eighteen percent of patients were considered frail and more than 50% completed the *5 Times Sit-to-Stand Test* at a higher time than the reference values adjusted to age and sex. Advanced age, ASA III/IV, sedentarism, frailty and a high level of anxiety and depression were related to a lower functional capacity.

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Conclusions: The surgical population of our area has a low functional reserve and a high index of sedentary lifestyle and frailty, predictors of postoperative morbidity. It is mandatory to implement preoperative measures to identify population at risk and prehabilitation programmes, considered highly promising preventive interventions towards improving surgical outcome.

PALABRAS CLAVE
Actividad física;
Capacidad funcional;
Fragilidad;
Pronóstico quirúrgico;
Complicaciones postoperatorias;
Prehabilitación

Actividad física y fragilidad como indicadores de reserva cardiorrespiratoria y predictores del pronóstico quirúrgico: caracterización de la población quirúrgica en cirugía general y digestiva

Resumen
Introducción: Una baja reserva cardiorrespiratoria, un bajo nivel de actividad física y la fragilidad se relacionan con una mayor morbimortalidad perioperatoria. Implementar medidas para optimizar estos aspectos es clave para mejorar el pronóstico. Es fundamental conocer la magnitud del problema para dimensionar los programas de optimización preoperatoria.
Objetivo: Caracterizar la población quirúrgica de un hospital universitario de nivel terciario.
Métodos: Se incluyeron prospectivamente todos los pacientes sometidos a evaluación preoperatoria para cirugía digestiva con ingreso durante 3 meses. Se evaluó el nivel de actividad física, la capacidad funcional, la fragilidad y el estado emocional, y se realizó un test de medición del estado físico (*5 Times Sit-to-Stand Test*). Se recogieron datos demográficos, clínicos y relacionados con la cirugía.
Resultados: Se incluyeron 140 pacientes (60 ± 15 años, 56% varones, 25% ASA III o IV). El 49% estaban propuestos para cirugía oncológica y un 13% había recibido neoadyuvancia. El 70% de los pacientes presentaban una capacidad funcional reducida y eran sedentarios. Un 18% fueron considerados frágiles y más de un 50% completaron el *5 Times Sit-to-Stand Test* en un tiempo superior a los valores de referencia. La edad avanzada, el ASA III/IV, el sedentarismo, la fragilidad y un nivel de ansiedad/depresión elevado se relacionaron con una menor capacidad funcional.
Conclusiones: La población quirúrgica de nuestro entorno tiene una baja reserva funcional y un elevado índice de sedentarismo y fragilidad, factores asociados a un peor pronóstico quirúrgico. Urge implementar medidas preoperatorias para identificar la población de riesgo y programas de prehabilitación considerados estrategias de optimización preoperatoria con gran potencial.

Introduction

Surgery, even in the absence of complications, causes a patient's health to deteriorate to the point where they are either totally or partially incapacitated for a certain length of time.[1] The duration of this period of disability and the care needed depend as much on the extent of the surgery and the appearance of peri- and postsurgical complications as on the preoperative status of the individual.

Medicine has progressed in recent years to the point the surgical morbidity is now greatly improved, making surgery a safer process that can be performed on a larger range of patients. As a result, it is increasingly common for both complex and elderly patients to undergo aggressive surgical procedures, and the pre-surgical work-up must now focus on evaluating not only the patient's chances of being cured, but also their chances of surviving the surgery with an acceptable quality of life. Risk stratification has proved to be a fundamental tool for allowing clinicians, health authorities, hospital managers and patients to make decisions that will contribute to improve quality of care and efficiency.

A low level of physical activity and a low functional reserve, quantified using various tests, such as the 6-min walk test or more complex tests such as the cardiopulmonary exercise test, are predictive factors for postoperative complications, disability, institutionalisation, and even postoperative mortality.[2,3] Frailty, defined as a condition associated with low physiological functional reserve and greater vulnerability to stress situations, has also been shown to be a predictor of poor postoperative prognosis.[4,5]

In this context, several interventions aimed at improving all these factors have been proposed in an attempt to improve postoperative outcomes. For example, prehabilitation, defined as the process of enhancing a patient's functional capacity before scheduled surgery, has emerged as a highly promising strategy.[6] A key element in improving surgical outcomes is the development of standardised