



ORIGINAL ARTICLE

Whole-body computed tomography as a factor associated with lower mortality in severe geriatric trauma with thoracic-abdominal-pelvic injury[☆]



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KEYWORDS

Multiple trauma;
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Abstract

Objective: To determine the relationship between the use of whole-body computed tomography (WB-CT) and hospital mortality in elderly patients with thoracic–abdominal–pelvic injury requiring admission to an intensive care unit.

Patients and method: An observational, descriptive and retrospective study was conducted on 140 patients aged 65 years and older admitted to the intensive care unit after a thoracic–abdominal–pelvic injury. Two groups were established, depending on whether a WB-CT was performed as a routine part of the study or the diagnosis was established by conventional radiography or ultrasound. A comparative analysis was performed on both groups, as well as an analysis of mortality through logistic regression.

Results: The mean age of the patients was 75.16 ± 8.89 years. The mean score on the APACHE II scale was 16.25 ± 8.4 points, and on the Injury Severity Score scale, 22.38 ± 15.45 points. WB-CT was performed on 102 patients (72.9%). In these patients, there was a lower mortality rate (15.7 vs. 52.6%, $p < 0.001$), a lower need for mechanical ventilation (47.1 vs. 65.8%, $p = 0.049$), and a lower score on the APACHE II scale (14.75 ± 7.19 vs. 20.26 ± 10.06 points, $p = 0.003$). The multivariate analysis showed a lower mortality in the patients in whom WB-CT was performed, with an OR of 0.21 (95% CI 0.07–0.68; $p = 0.010$), after adjusting for the APACHE II and ISS scores.

Conclusions: Performing a WB-CT scan as part of the trauma study could improve the management of elderly patients with thoracic–abdominal–pelvic involvement admitted to the intensive care unit.

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PALABRAS CLAVE

Politraumatismo;
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corporal

La tomografía computarizada corporal como factor asociado a menor mortalidad en el traumatismo geriátrico grave con afectación toracoabdominopélvica

Resumen

Objetivo: Analizar la asociación de la realización de una tomografía computarizada (TC) corporal con la mortalidad intrahospitalaria en pacientes de edad avanzada con afectación toracoabdominopélvica que precisa ingreso en una unidad de cuidados intensivos.

Pacientes y método: Estudio observacional, descriptivo y retrospectivo realizado sobre 140 pacientes con edad igual o mayor de 65 años ingresados en una unidad de cuidados intensivos tras un traumatismo con afectación toracoabdominopélvica. Se establecen 2 grupos, según se haya realizado TC corporal como parte rutinaria del estudio o el diagnóstico se estableciera mediante radiografía convencional o ecografía. Análisis comparativo de ambos grupos y análisis de la mortalidad mediante regresión logística.

Resultados: La edad media fue de $75,16 \pm 8,89$ años. La puntuación media en la escala APACHE II fue de $16,25 \pm 8,4$ puntos, y en la escala *Injury Severity Score*, de $22,38 \pm 15,45$ puntos. Se realizó TC corporal en 102 pacientes (72,9%). En estos se observó una menor mortalidad (15,7 frente a 52,6%; $p < 0,001$), una menor necesidad de ventilación mecánica (47,1 frente a 65,8%; $p = 0,049$) y una menor puntuación en la escala APACHE II ($14,75 \pm 7,19$ frente a $20,26 \pm 10,06$ puntos; $p = 0,003$). El análisis multivariante mostró una menor mortalidad en los pacientes en los que se realizó TC corporal, con una OR de 0,21 (IC 95% 0,07–0,68; $p = 0,010$), tras ajustar por puntuación en la escala APACHE II y en el *Injury Severity Score*.

Conclusiones: La realización de TC corporal como parte del estudio del traumatismo podría mejorar el manejo de los pacientes de edad avanzada con afectación toracoabdominopélvica que ingresan en una unidad de cuidados intensivos.

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Introduction

Records show that the number of elderly people requiring hospital care as a result of trauma has increased in recent years.^{1–3} This has been linked to an increase in the number of elderly individuals with a high degree of physical activity and functional independence.^{1,4}

This population has a number of special characteristics, such as the physiological changes associated with ageing, greater comorbidity and use of medication, lower functional reserve, and a poorer response to stress situations. All these factors result in a higher rate of mortality and worse functional prognosis after trauma.^{3,5–7} However, the use of intensive therapies is associated with a better prognosis in these patients.^{8,9}

The physiological parameters usually used to establish the clinical severity of trauma are not effective in this group, since the presence of vital signs within normal ranges is not synonymous with clinical stability in the elderly. Therefore, apparent stability in the initial evaluation does not rule out a serious situation.^{10–12}

With regard to imaging techniques used to diagnose specific trauma-related injuries, computed tomography (CT) appears to have greater sensitivity and specificity in the detection of multiple, potentially serious lesions.^{13,14} Although the benefit of the systematic use of this technique in reducing mortality in the general population has yet to be determined,^{15–17} studies have revealed the need

to detect patients who may benefit from the prompt use of CT scanning.¹⁷

Given the difficulty of assessing and detecting potentially serious situations in the elderly, the use of CT could have both a survival and therapeutic benefit.

In this study, we analysed the relationship between mortality and the use of full-body CT in an elderly population admitted to the intensive care unit (ICU) due to injury to the chest, abdomen and/or pelvis.

Patients and method

Observational, retrospective, comparative study performed in the ICU of a tertiary hospital. The study was approved by the corresponding Clinical Research Ethics Committee. Given the retrospective, non-interventional nature of the study, informed consent was not required.

All patients aged 65 years or older who were admitted to the ICU as a result of thoracic, abdominal or pelvic trauma were included in the analysis. Thoracic, abdominal or pelvic trauma was defined as the presence of any injury in these areas, irrespective of their severity. Patients presenting cardiac arrest prior to admission to the unit were excluded.

Data were collected from the clinical history of the patients and entered into a database prior to statistical analysis.

Age was presented in whole years and sex as a dichotomous variable (male or female). Clinical severity

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