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ORIGINAL ARTICLE

A higher Charlson comorbidity index is related to more aggressive characteristics in de novo vesical tumors☆

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KEYWORDS
Bladder tumor;
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Abstract
Objective: To analyze the relationship between the age-adjusted Charlson comorbidity index (aCCI) and pathological outcomes of transurethral resection of de novo bladder tumors (BT).
Material and methods: Data from 208 patients who underwent a transurethral resection (TUR) of a de novo BT between 2007 and 2008 were collected. We recorded the following variables: age, sex, tobacco consumption, comorbidities assessed according to the aCCI (score and mortality rate), disease stage, tumor grade and risk of recurrence and progression. The relationship between the preoperative variables and the final pathological characteristics was analyzed. The multivariate study was conducted with the significant variables ($p < .05$) from the univariate analysis.
Results: The mean age of the patients was 69.5 ± 12 years, and 77% were men. The mean aCCI was 6.4 ± 2.5. The final pathology results showed a Tx, T0, Ta, T1 and ≥T2 in 5.3, 6.7, 31.7, 26.9, and 28.8% of the cases, respectively. 33.3% of the tumors were low-grade and 66.7% were high-grade. 14.3% of the tumors were associated with carcinoma in situ. Among those non musculo-invasive bladder tumor (non-MIBT), 34.7% had a low risk of recurrence and progression, 18.1% had an intermediate risk and 47.2% had a high risk.

The patients with a aCCI ≥5 had an increased number of MIBT (RR: 2.29; 1.1–4.8; $p = .032$), high-grade tumors (RR: 3.1; CI: 1.6–6; $p = .001$) and tumors with a high risk of recurrence and progression (RR: 2.9; CI: 1.4–5.9; $p < .001$).
Conclusion: The aCCI is related to the pathological characteristics of de novo BT. Patients with greater comorbidity can present more aggressive tumors. The aCCI could therefore be useful in clinical practice for identifying patients with worse prognosis.

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PALABRAS CLAVE
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Un mayor índice de comorbilidad de Charlson se relaciona con características más agresivas de los tumores vesicales de novo

Resumen

Objetivo: Analizar la relación entre el índice de comorbilidad de Charlson ajustado por edad (ICCa) y los resultados anatomopatológicos de las resecciones transuretrales (RTU) de tumores vesicales (TV) de novo.

Material y métodos: Se recogieron los datos de 208 pacientes que, entre 2007 y 2008, fueron tratados mediante una RTU de un TV de novo. Se recogieron las variables edad, género, consumo de tabaco, comorbilidades evaluadas según el ICCa (puntuación y tasa de mortalidad), estadio patológico, grado tumoral y riesgo de recurrencia y progresión. Se analizó la relación entre las variables preoperatorias y las características patológicas finales. Se realizó el estudio multivariante con aquellas variables significativas ($p < 0,05$) en el análisis univariante.

Resultados: La edad media fue $69,5 \pm 12$. Un 77% fueron hombres. El ICCa medio fue $6,4 \pm 2,5$. El resultado anatomopatológico final mostró un Tx, T0, Ta, T1 y T≥2 en el 5,3; 6,7; 31,7; 26,9 y 28,8%, respectivamente. El 33,3% fueron de bajo grado y el 66,7% de alto grado. Un 14,3% se asoció con CIS. Entre los TV no músculo invasivos, el 34,7% fueron de bajo riesgo de recurrencia y progresión, el 18,1% intermedio y el 47,2% de alto riesgo.

Los pacientes con un ICCa igual o superior a 5 presentaron un mayor número de TV músculo invasivos (RR: 2,29; 1,1–4,8; $p = 0,032$), de tumores de alto grado (RR 3,1; IC: 1.6–6; $p = 0,001$) y de tumores de alto riesgo de recurrencia y progresión (RR: 2,9; IC: 1,4–5,9; $p < 0,001$).

Conclusión: El ICCa está relacionado con las características patológicas de los TV de novo. Pacientes con mayor comorbilidad pueden presentar tumores más agresivos, por lo que el ICCa podría ser útil en la práctica clínica al identificar a pacientes con peor pronóstico.

Introduction

The bladder tumor (BT) is a common urologic neoplasia, which annually affects 9 out of 100,000 men and 2 out of 100,000 women around the world. Approximately 75% of the BTs are limited to the epithelium (Ta stage and carcinoma in situ [CIS]) or lamina propria (stage T1) at the time of diagnosis, being included in the group of non-muscle invasive BTs (NMIBT). These tumors are associated with high rates of survival after transurethral resection (TUR). However, 30 to 80% of these BTs will reappear during follow-up, while the probability of progression to muscle invasive BT (MIBT) can reach 45% in tumors with worse prognosis, leading to a significant increase in the cancer-specific mortality.[1]

The existence of comorbidity is common in patients with BT. In fact, the association between consumption of tobacco and urothelial carcinoma means that a lung, cardiovascular, and even neoplastic disease is common among patients with BT. The load of comorbidity has been linked to overall survival in several diseases, including various types of cancer.[2,3] Some authors have reported worse overall and cancer-specific survival in patients with high comorbidity who are treated with radical cystectomy.[4,5] The Charlson comorbidity index (CCI) is a validated index developed to predict mortality according to the load of comorbidity of each patient.[6] To our knowledge, there is little literature focused on the analysis of the relationship between the pathological features of BT and the comorbidity assessed according to a validated tool such as the Charlson index.

Objective

In this context, we analyze whether the presence of significant comorbidity, assessed with the age-adjusted Charlson comorbidity index (aCCI), is related to the stage and aggressiveness of the BT in a cohort of consecutive patients diagnosed with de novo BT.

Materials and methods

We retrospectively collected data on 208 consecutive patients who underwent a TUR of a de novo BT between January 2007 and December 2008 in our hospital. Their medical records were reviewed and the variables age, gender, cigarette consumption, weight, height, body mass index (BMI), and the comorbidities present in every patient prior to surgery (those included in the Charlson index) were collected. This index is based on the presence of 19 diseases, each rated from 1 to 6 according to the magnitude of the relative risk associated to the presence of each of them. These comorbidities are acute myocardial infarction, congestive heart failure, peripheral vascular disease, cerebrovascular disease, dementia, chronic lung disease, connective tissue diseases, ulcer disease, liver disease, diabetes, hemiplegia, moderate or severe renal failure, the presence of a solid tumor in the last 5 years, the presence of a metastatic tumor, leukemia, lymphoma, and AIDS. Subsequently, a score from 0 to 37 is obtained that will finally be adjusted according to the patient's age, adding one point for each decade beyond the age of 50. A specific mortality rate corresponds