学位の種類	博士（医学）
報告番号	甲第２０１７号
学位記番号	第１４２２号
氏名	藤田 浩平
授与年月日	令和6年 3月 22日
学位論文の題名	Serum creatinine/cystatin C ratio is a surrogate marker for sarcopenia in patients with idiopathic pulmonary fibrosis （血清クレアチニン/シスタチンC比は特発性肺線維症に併発するサルコペニアの予測マーカーである） BMC Pulmonary Medicine. 22: 203, 2022
論文審査担当者	主査： 奥田 勝裕 副査： 村上 英樹，赤津 裕康

Serum creatinine / cystatin C ratio is a surrogate marker for sarcopenia in patients with idiopathic pulmonary fibrosis

Abstract

Background: Sarcopenia is an age-related syndrome characterized by a progressive and generalized loss of skeletal muscle mass and function and is strictly correlated with physical disability, poor quality of life, and death. The serum creatinine / cystatin C (Cr/CysC) ratio has attracted attention as a marker for sarcopenia, but has not been studied in patients with idiopathic pulmonary fibrosis (IPF). This study aimed to confirm the utility of the serum Cr/CysC ratio in predicting sarcopenia and to investigate its clinical relevance.

Methods: This cross-sectional pilot study prospectively enrolled patients with stable IPF. IPF was diagnosed through multidisciplinary discussions according to the 2018 international guidelines, and sarcopenia was diagnosed according to the 2019 consensus report of the Asian Working Group for Sarcopenia. Patient-reported outcomes (PROs) were evaluated using the modified Medical Research Council (mMRC) dyspnea scale, chronic obstructive pulmonary disease assessment test (CAT), and King's Brief Interstitial Lung Disease (K-BILD) questionnaire. The associations between serum Cr/CysC ratio and the presence of sarcopenia and other clinical parameters, including PROs scores, were examined.

Results: The study enrolled 49 Japanese patients with IPF with a mean age of 73.0 ± 7.7 years and a mean percentage of predicted forced vital capacity of 80.4 ± 15.5%. Sarcopenia was diagnosed in 18 patients (36.7%), and the serum Cr/CysC ratio was 0.86 [0.76–0.94]

(median [interquartile range]). The receiver operating characteristic curve analyses for the detection of sarcopenia according to the serum Cr/CysC showed that the area under the curve, optimal cutoff value, specificity, and sensitivity were 0.85, 0.88, 0.65, and 0.94, respectively. Sarcopenia was identified in 13% of patients with a high serum Cr/CysC ratio (≥0.88) and 60% of patients with a low serum Cr/CysC ratio (<0.88) (P<0.001). Multiple linear regression analysis showed that the serum Cr/CysC ratio was an independent predictive marker of worse PROs evaluated using mMRC (P<0.05), CAT (P<0.05), and K-BILD (P<0.05).

Conclusions: This study showed that the serum Cr/CysC ratio may be a surrogate marker of sarcopenia in patients with IPF. Furthermore, it is important to pay attention to the serum Cr/CysC ratio because a lower serum Cr/CysC ratio is associated with worse PROs. Further studies are required to validate these observations to determine whether the Cr/CysC ratio can be used to detect sarcopenia in patients with IPF.