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Title:
T3-T4 index as a prognostic marker of response to biological treatments in elderly patients with inflammatory bowel disease

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Title: T3-T4 index as a prognostic marker of response to biological treatments in elderly patients with inflammatory bowel disease.

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Mr Editor:

Following the current trend in inflammatory bowel disease (IBD) of trying to individualise treatment (1) and based on the work of Lorenzo Bertani (2) we have conducted a study with the aim of reproducing that the T3-T4 index is a useful serological marker for predicting response to biologic treatments in elderly patients with IBD.

We included all patients in the practice who were starting biological treatment for the first time and were over 60 years of age, regardless of their comorbidity. Assessment of response to biologic treatments was performed taking into account real clinical practice parameters: steroid-free clinical remission (defined as Harvey Bradshaw Index (HBI) <4 in Crohn's disease or Clinical Activity Index <2 in ulcerative colitis) and biological remission (defined as faecal calprotectin <250 µg/g and CRP <8 mg/dl). Measurement of all these parameters was performed 12 weeks after treatment initiation.

A total of 68 patients were collected, 33 men and 35 women. The mean age was 68.47 ± 6.28 years. The diagnosis was ulcerative colitis (UC) in 29.4 % and Crohn's disease (CD) in 70.6 %. When analysing the mean T3/T4 index values between the steroid-free clinical remission/no steroid-free clinical remission and biological remission/no biological remission groups, no significant differences were found (Figure 1).

Discussion

There have been multiple observational clinical studies in which, in the absence of thyroid pathology, low T3 levels, or increased T4 relative to T3 (known as "low T3 syndrome"). These low levels have been associated with poor prognosis in various therapeutic scenarios and have even been proposed as a marker of frailty in the elderly patient. (3-5).

Recently, multiple studies on elderly IBD patients have been carried out (6-8), as this patient profile with comorbidities is becoming more and more frequent, and given its special complexity, the development of serological parameters such as the one proposed by Bertani could be very useful. With this letter we would like to encourage other groups to share their experience with this marker, as has been done in the past with HLA-DQA1*05 (5).

Regarding the uniqueness of the elderly patient, a tendency to low levels of activated thyroid hormone has been observed. Eighty percent of the conversion of thyroxine (T4) to the active hormone triiodothyronine (T3) is performed by deiodinases peripherally in the liver and kidney. Some studies suggest that chronic inflammatory states, low body mass index (BMI) and sarcopenia may be associated with increased protein catabolism and thus lower levels of activated thyroid hormone (9).

Regarding our work, it´s undeniable that difference in the measurement technique of the thyroid hormone used in the Italian hospital compared to the one used in our centre makes it difficult to compare results, but this is a factor over which we cannot intervene.

Another limiting factor of the study could be that by measuring the 12-week response we might miss late responses compared to the original study, as well as the small sample size.

Given the extensive literature that supports the justification of the work and despite its negative results, with this communication we intend to stimulate the curiosity of colleagues on this topic and encourage them to share their results.

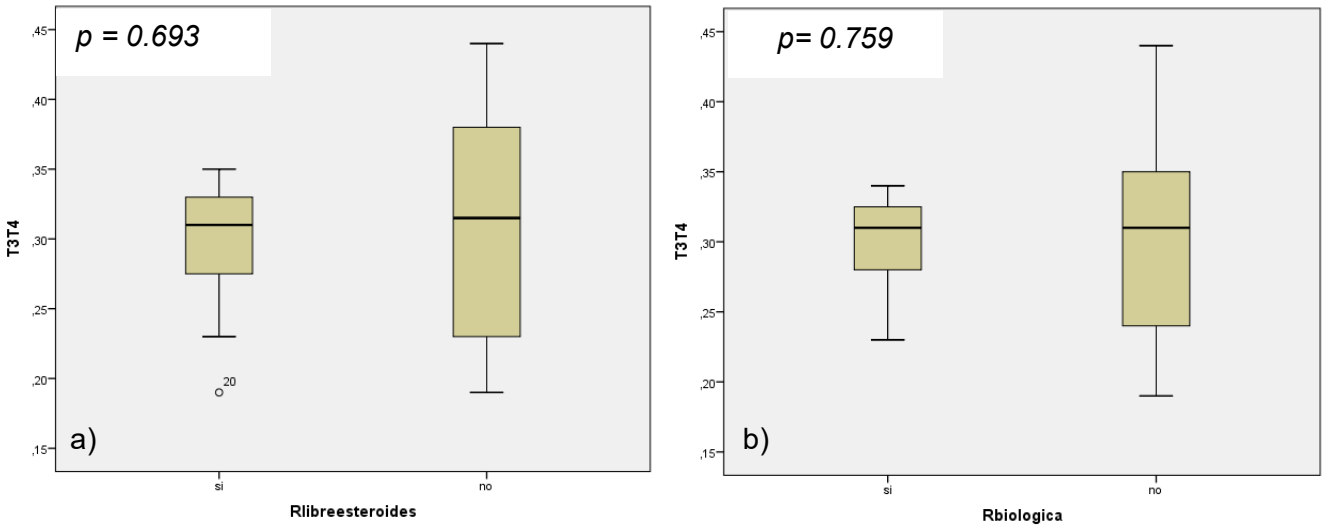

Figure 1. Box and whisker plots show that there are no statistically significant differences between group means according to T3/T4 index levels. a) Steroid-free remission, b) Biological remission.

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