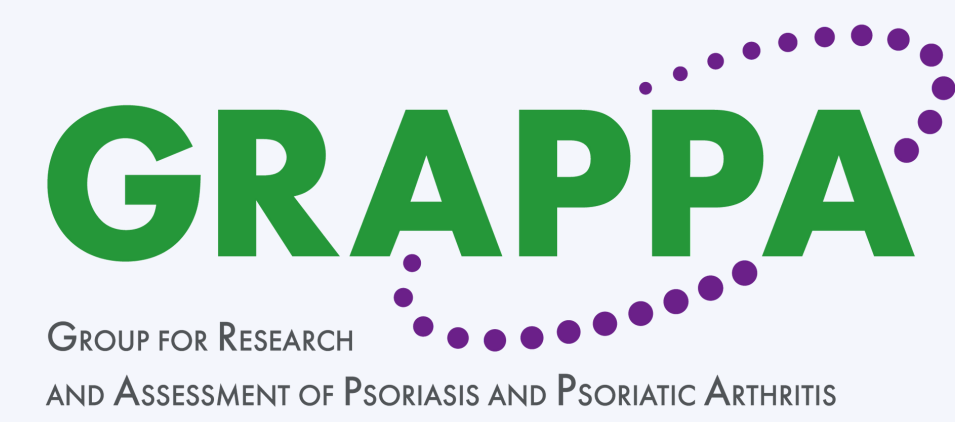# EVALUATION OF LIVER FIBROSIS IN PATIENTS WITH PSORIASIS AND RHEUMATOID ARTHRITIS TREATED WITH METHOTREXATE USING TRANSIENT ELASTOGRAPHY

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BACKGROUND

Methotrexate (MTX) is the first line treatment for moderate to severe psoriasis (pso) and rheumatoid arthritis (RA). The risk of significant liver fibrosis (LF) from prolonged MTX exposure has been estimated at around 5%, prompting intensive monitoring strategies. Some consensuses still indicate liver biopsy (LB) routinely regarding the cumulative dose (CD) but although is the gold standard, is an invasive method and has technical limitations. Hence, transient elastography (TE) is currently being increasingly used to estimate the degree of liver fibrosis in a non-invasive way, with reliable results.

OBJECTIVES

To compare the presence of LF among patients with pso and RA treated with methotrexate using TE;
To correlate the presence of changes in liver enzymes and the body mass index (BMI) value according to the TE result.

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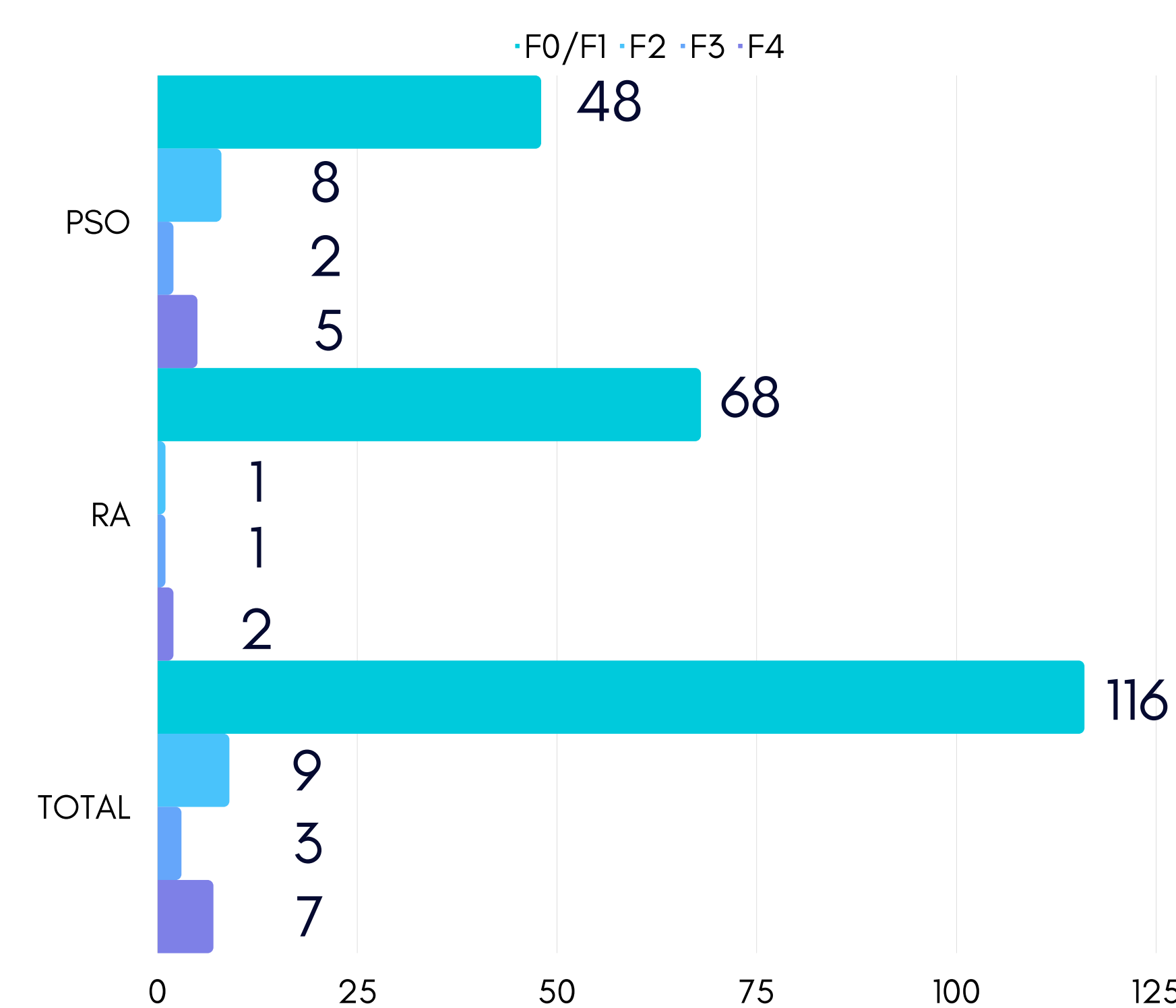
METHODS

- Cross-sectional observational study.
- Between 2018-2022, adult patients diagnosed with psoriasis or RA treated with methotrexate, who were not using immunobiologicals, were selected.
- All were referred for TE, using FibroScan®, with the Metavir score estimating the degree of LF, ranging from F0 to F4.
- A result > F2 would be compatible with significant fibrosis.
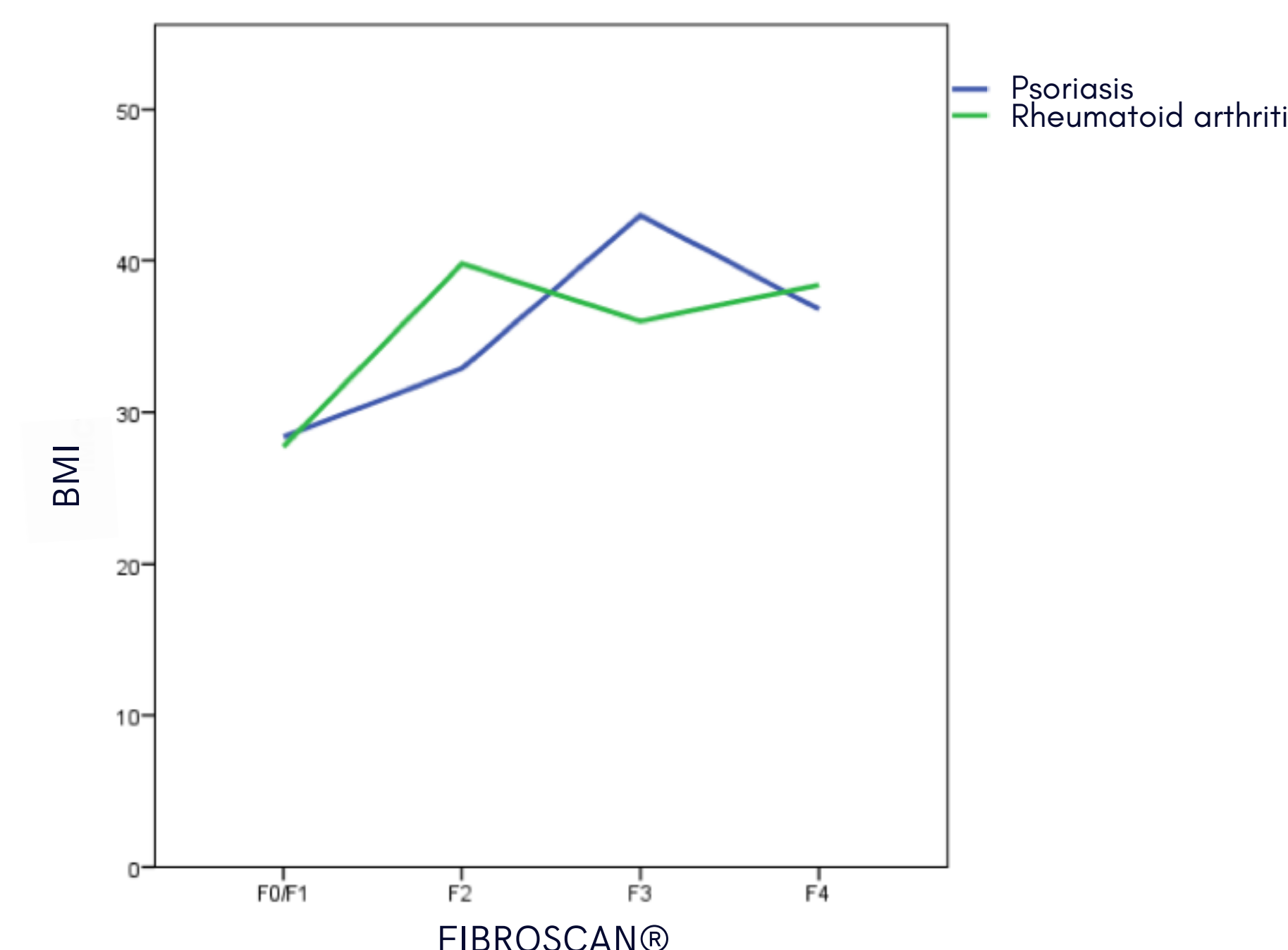- The results of liver biochemistry were also evaluated and the BMI was calculated.

Table 1: Baseline characteristics.

Baseline characteristics	Categories	Total (n=135)	Pso (n=63)	RA (n=72)
Gender, male or female, n(%)	Male	35 (25.9%)	29 (46.0%)	6 (8.3%)
	Female	100 (74.1%)	34 (54.0%)	66 (91.7%)
	x^2	31.29	0.397^{ns}	50.000
Altered liver enzymes, n(%)	Yes	13 (10.1%)	5(8.1%)	8 (11.9%)
	No	116 (89.9%)	57 (91.9%)	59 (88.1%)
	x^2	27.657	43.613	38.821
Age, years, mean (SD)		59.15 (11.57)	57.24 (11.23)	60.82 (11.68)
BMI (kg/m^2), mean (SD)		29.13 (5.47)	30.08 (5.66)	28.31 (5.19)

n= number of patients; Pso= psoriasis; RA= Rheumatoid arthritis; x2= chi-square test; SD= standard deviation; p=0,001.

Graphic 1: Transient elastography result

Graphic 2: Interaction between BMI and transient elastography results in patients with psoriasis and rheumatoid arthritis.

RESULTS

A total of 135 patients (pso: 63; RA: 72; mean age 59.15 ± 11.57 years, 74.1% females) were included (table 1). Of 135 with valid TE values, 19 (14,07%) had LF (pso: 15, RA: 4) (graphic 1). A significant association was found between the TE result and the type of disease (($x2$(1) = 9.648, p = .003). Patients with pso were 6.2 times more likely to have >F2 results on TE when compared with those with RA. A significant association was also found between BMI and the TE result. When there is a one-point increase in BMI, the chances of obtaining an F0/F1 result decrease by 0.47 (graphic 2). There wasn't statistically significance between the CD of methotrexate and the Metavir score (p = 0,610).

CONCLUSION

The prevalence of LF is uncommon in both diseases, but attention should be paid to the risk factors for its occurrence. Both psoriasis and BMI were independently associated with LF assessed using TE. We must take into consideration the presence of obesity as a risk factor for liver fibrosis, which is probably more important than CD of methotrexate. However, further research is needed so that we can better assess the risk factors related to the use of methotrexate.

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