AGREEMENT AND DISAGREEMENT BETWEEN TWO MOST VALIDATED NONIVASIVE FIBROSIS EVALUATION METHODS

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Introduction: Because liver biopsy is an imperfect gold standard, and noninvasive methods for fibrosis evaluation are made based on it, disagreement can be quite significant between two such methods. Fibroscan and Fibrotest are the most validated two methods. In this study we tried to identify what other controllable factors influence their concordance rate.

Methods: 128 patients with proven chronic HCV infection, naive, were included in this study. In every patient, Fibroscan and Fibromax were performed the same day. Only valid results (as recommended by their manufacturers) were analyzed. For Fibroscan we used the following cut-offs: F1 - 5.5 Kpa, F2 - 7.1 Kpa, F3 - 9.5 Kpa, F4 - 14.5 Kpa.

The patients: 63 women and 65 men, aged between 18 and 76 years, with a mean of 47.72 years. Their BMI ranged from 18.02 to 36.88.
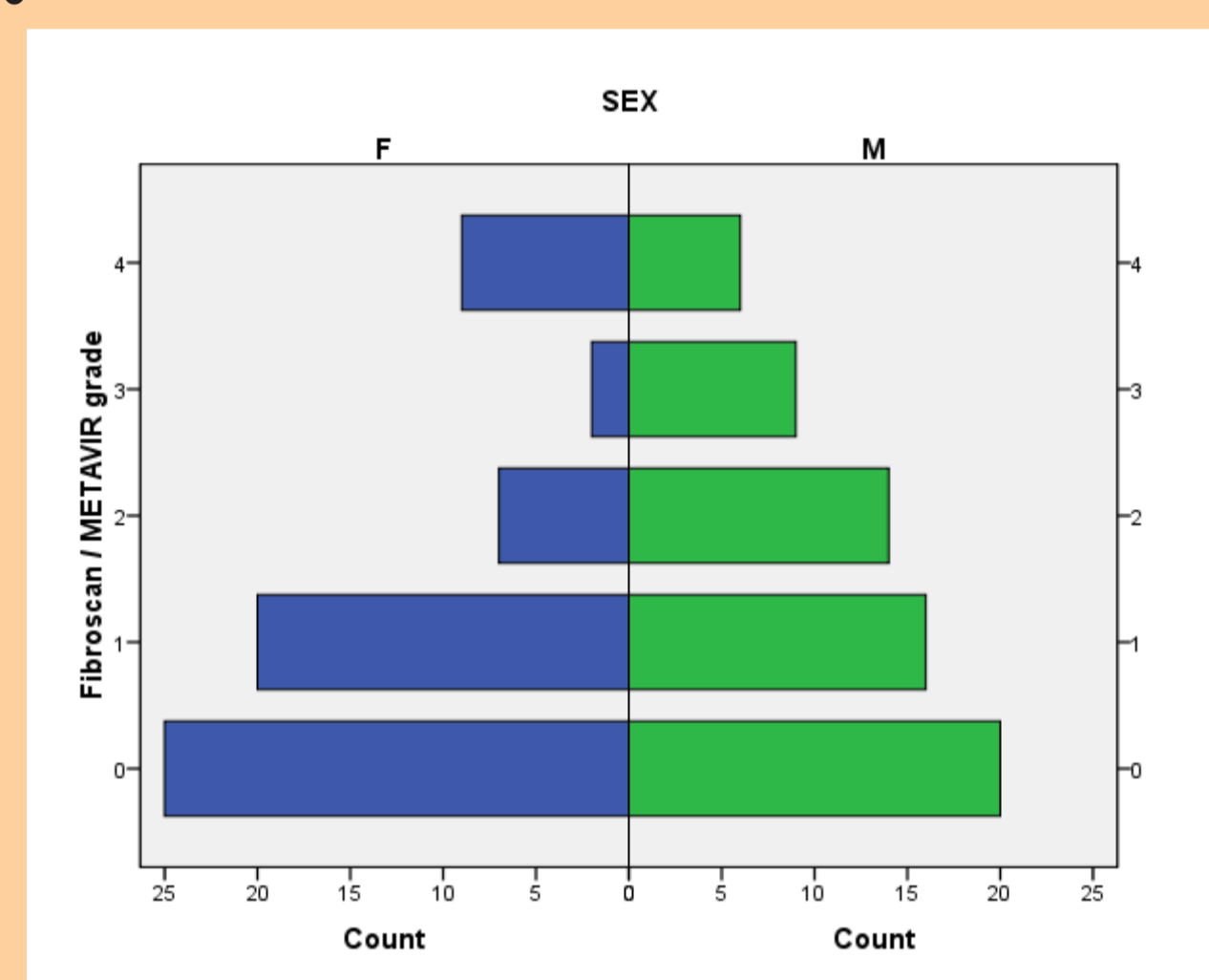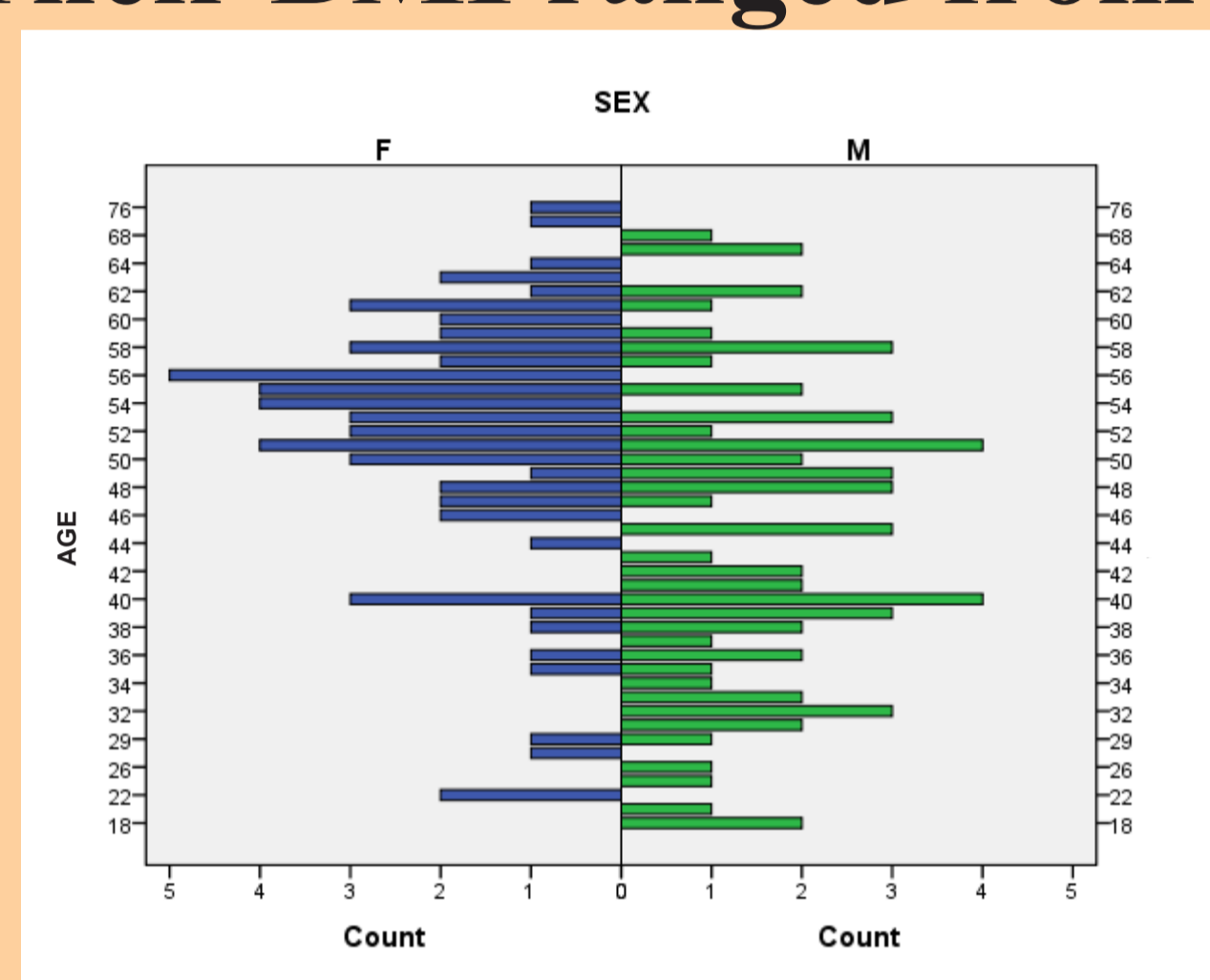

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	128	17	76	47.72	11.773
STIFFNESS	128	2.4	59.3	8.745	8.4886
Fibrotest	128	.05	.93	.3818	.24093
Valid N (listwise)	128				

Results: The liver stiffness varied between 2.4 and 59.3 KPa, with a mean of 8.74 Kpa.
Fibrotest ranged from 0.05 to 0.93, mean 0.38.
An overall 74.21% (95/128, rho=0.360, p<0.0001) agreement between FT and FS (Metavir correspondent) was found if one degree difference was considered acceptable.

Castera et al. Gastroenterology 2005; 128:343-50
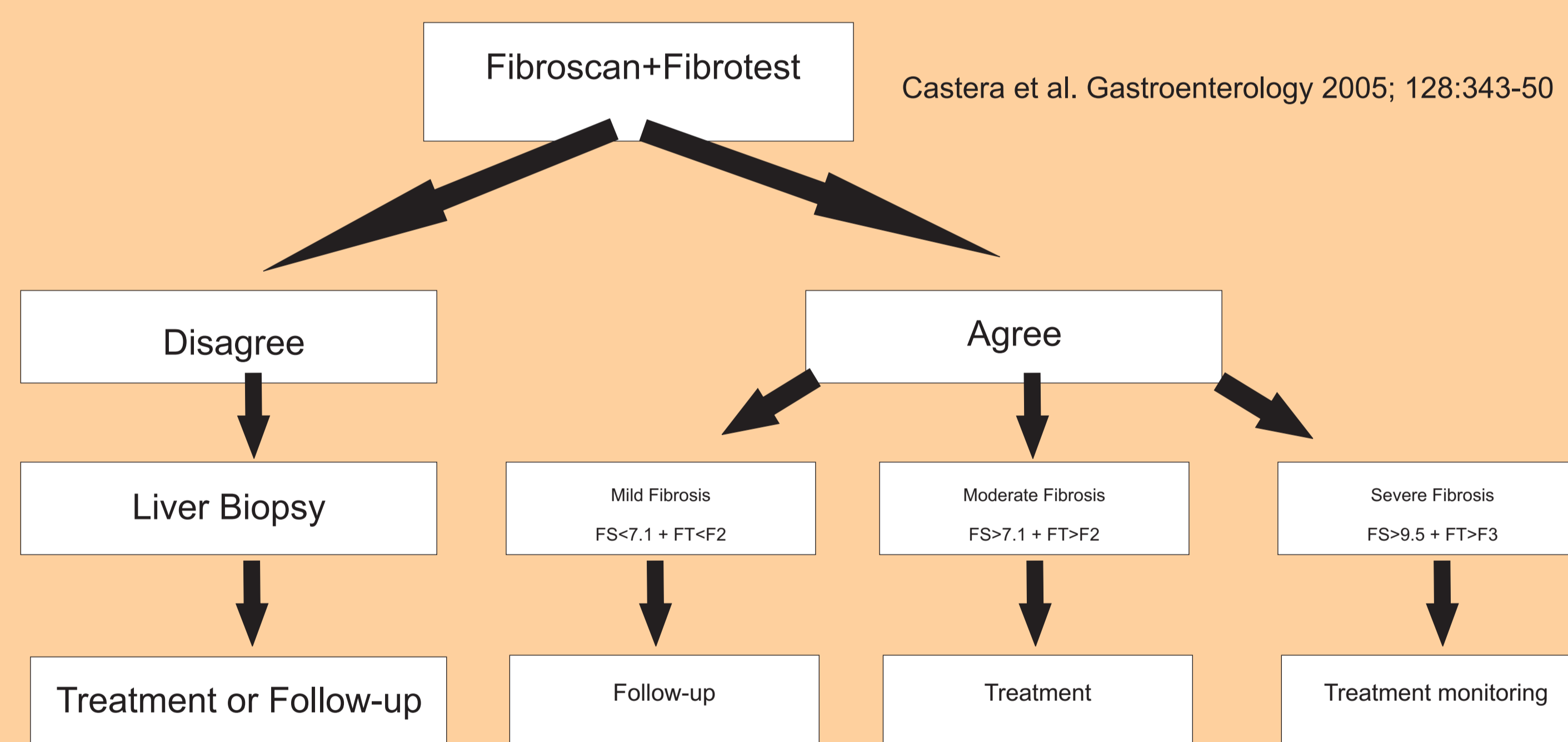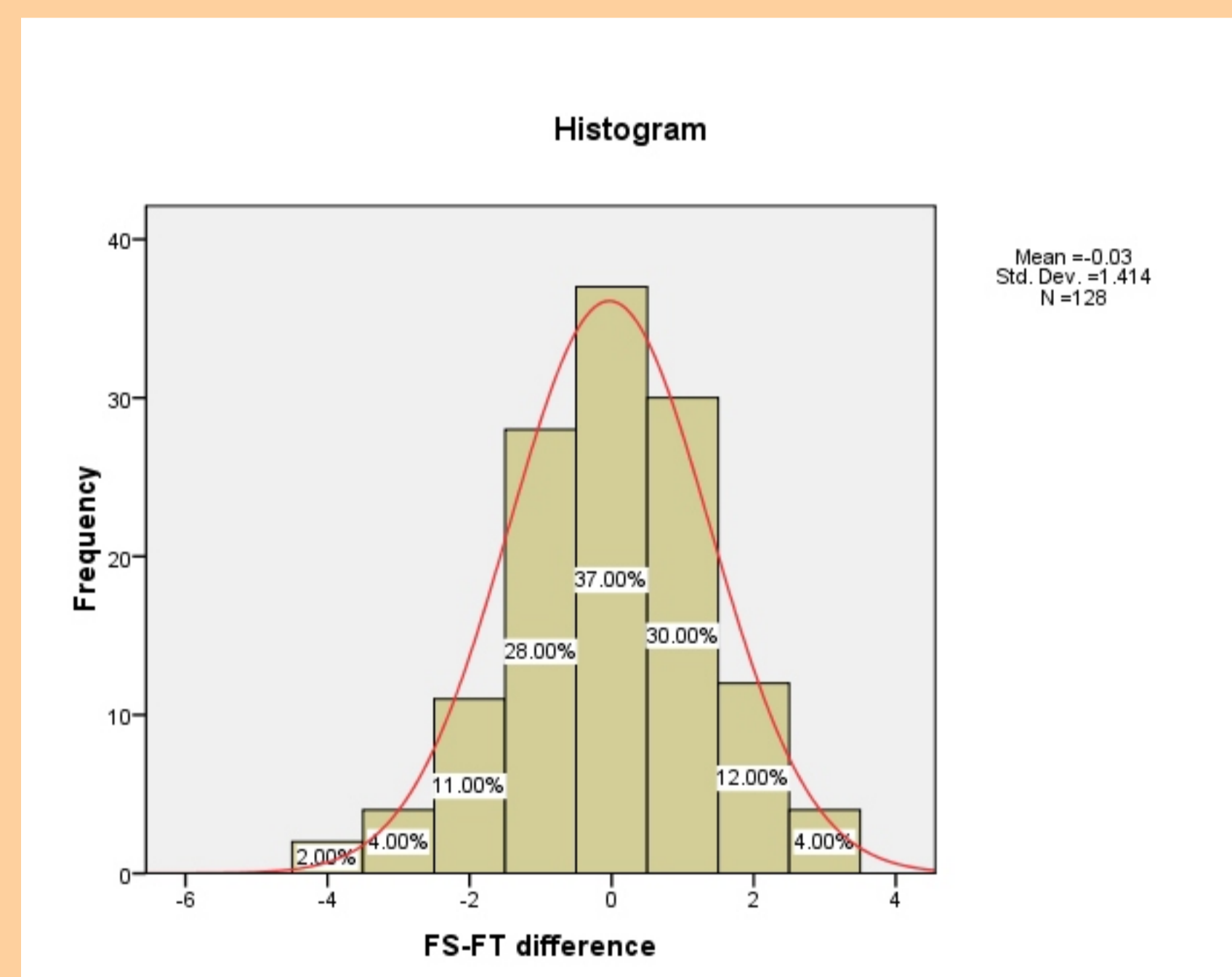
For Castera algorithm 88 of 128 liver biopsies would be avoided (68.75%).
The best prediction of fibroscan grade by fibrotest is as expected for cirrhosis (AUROC=0.846, CI 0.76-0.93), while for stages 0 and 1, AUROC is very low. The prediction of fibrotest by fibroscan follows the same pattern.

Prediction of Fibroscan by Fibrotest

FT=F1
AUROC=0.379

FT=F2
AUROC=0.521

FT=F3
AUROC=0.623

FT=F4
AUROC=0.846
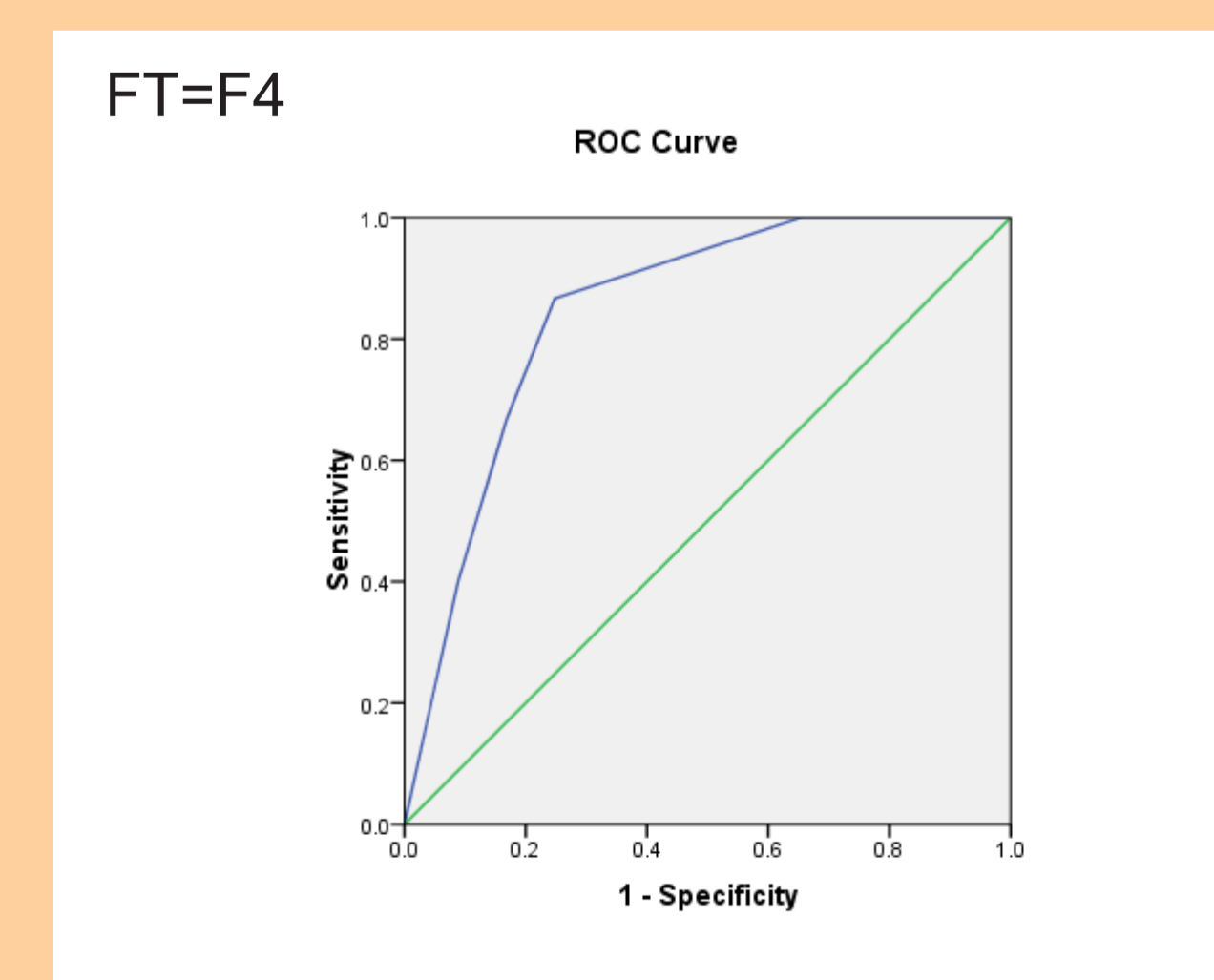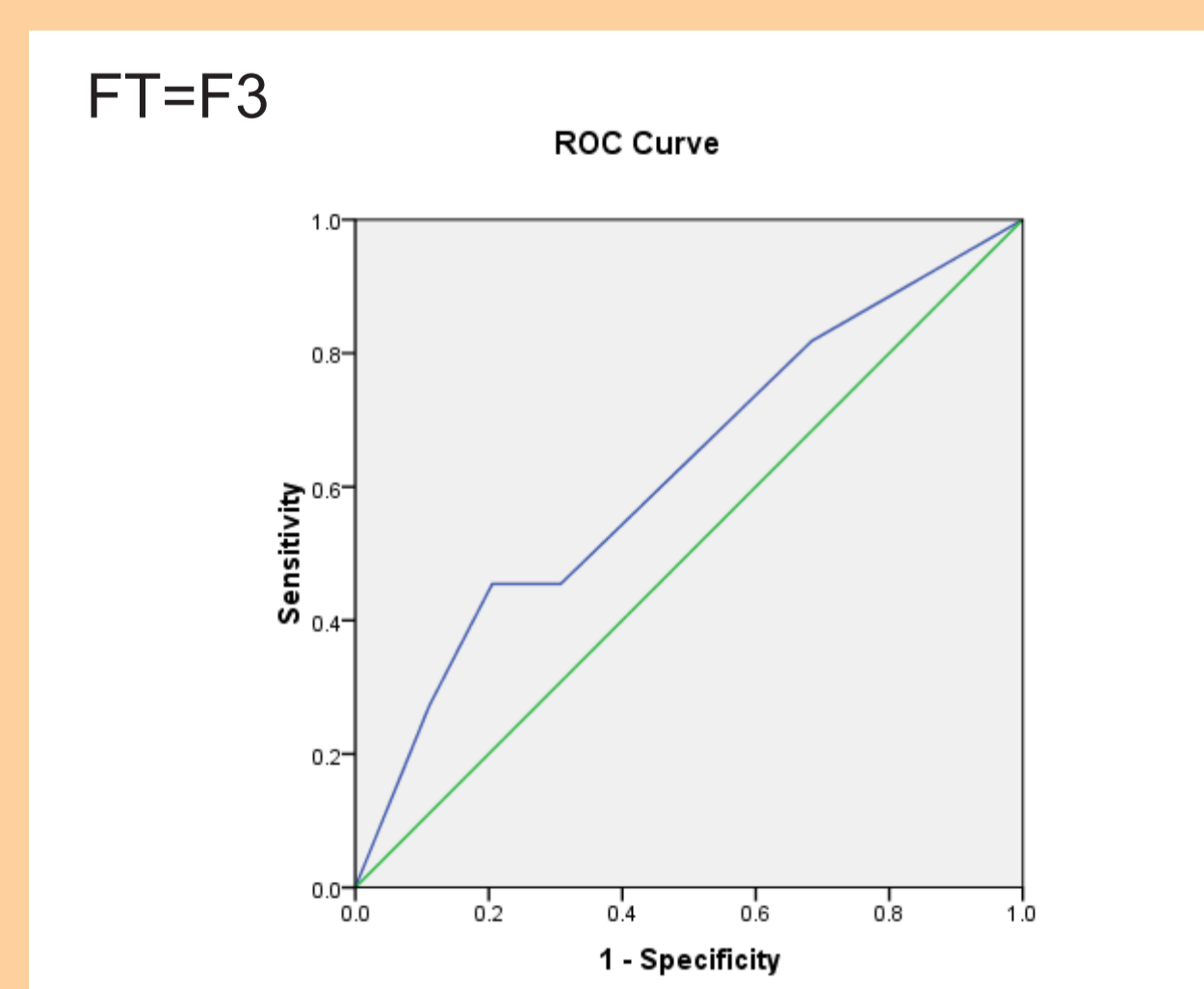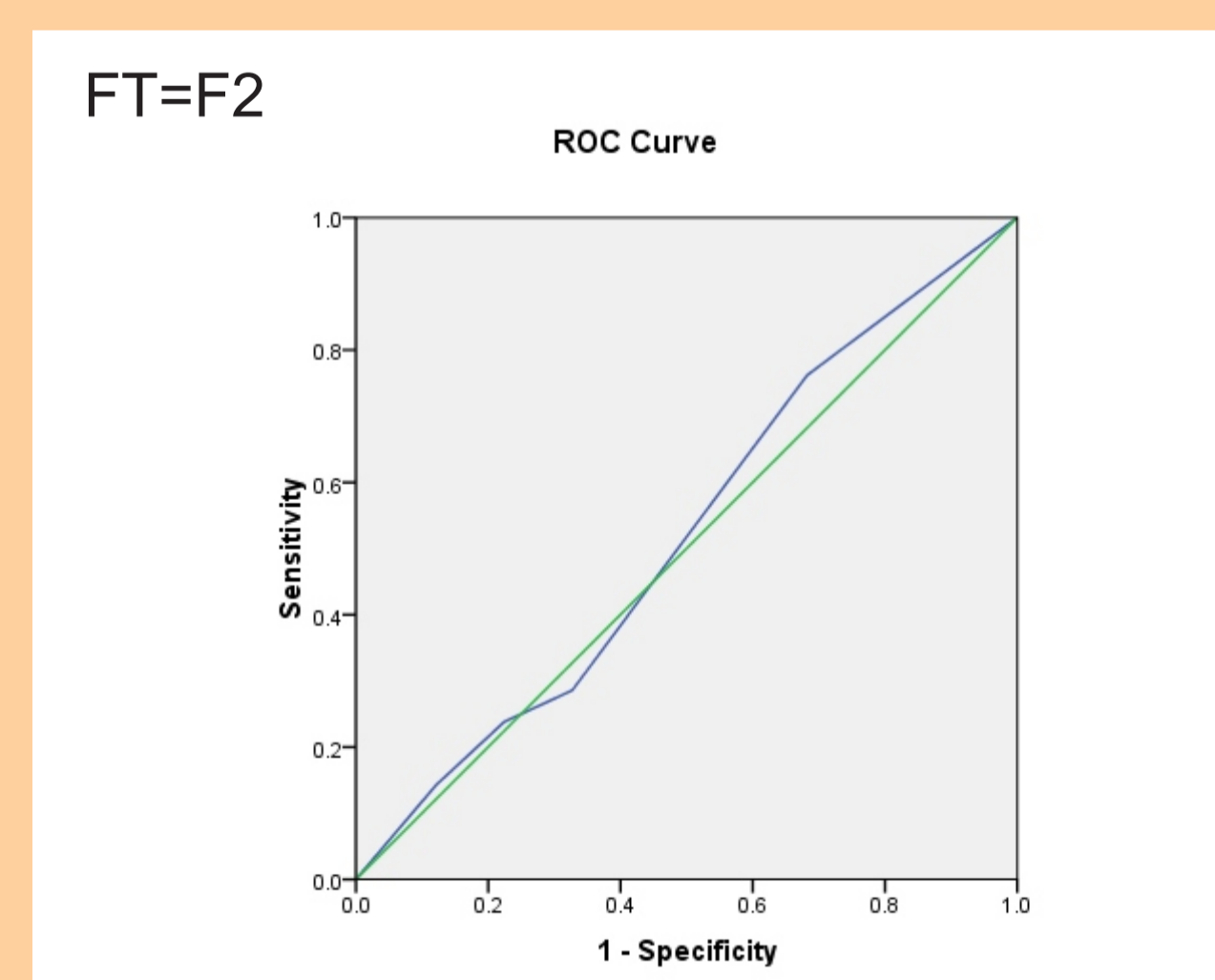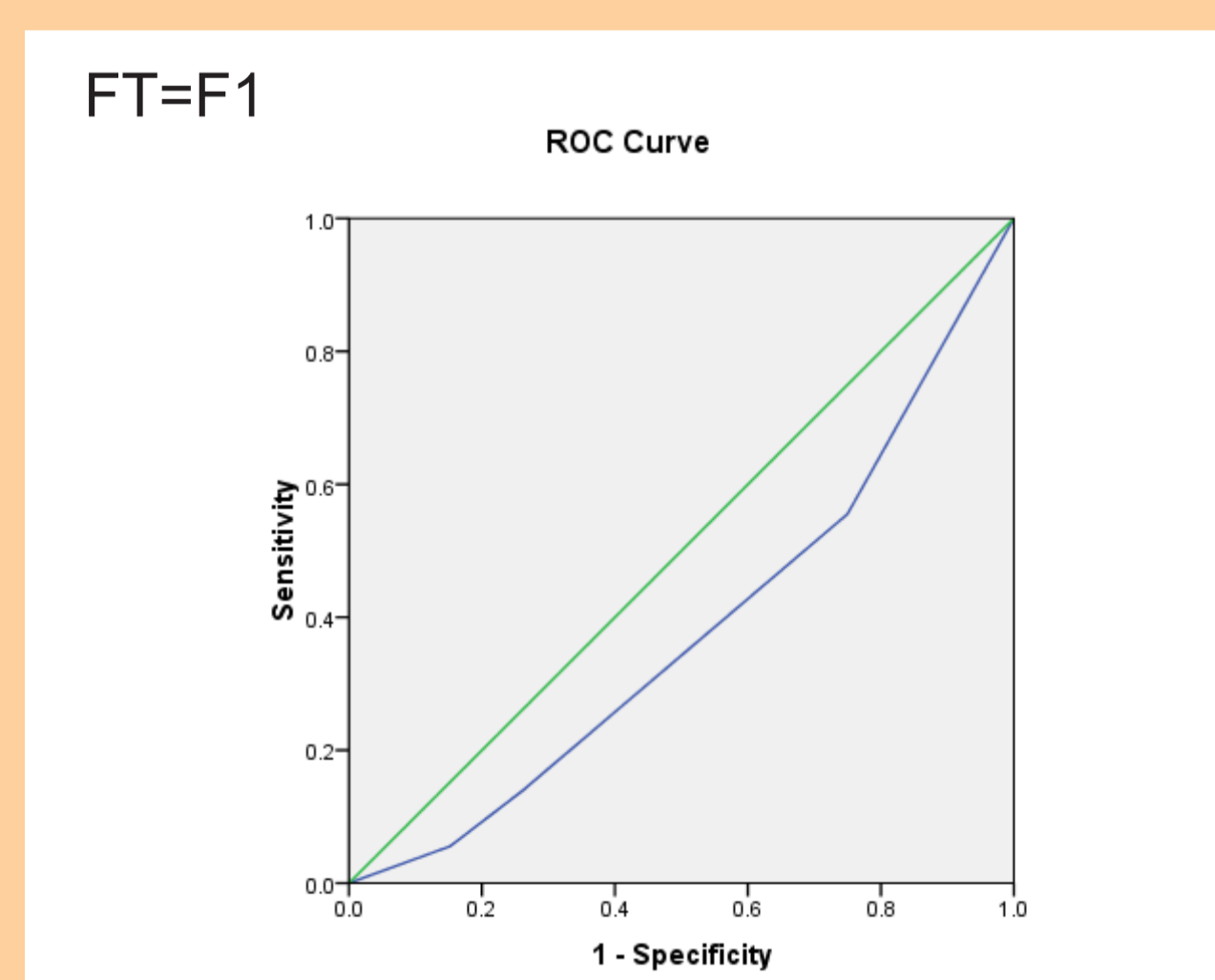
FT and FS agreement is not statistically significant influenced by gender, elevated ALT or, AST values, BMI over 30, operator. Elevated GGT values and age over 50 resulted in lower agreement (p<0.005). Liver stiffness is directly correlated with AST, GGT, ALT, Alfa2macroglobulin, and inversely with cholesterol (r = 0.566, 0.466, 0.234, 0.230, -0.319, p<0.001).

Conclusions: Liver stiffness and fibrotest have a good correlation and using an algorithm like the one proposed by Castera would significantly reduce the need of a liver biopsy.
Liver stiffness is an objective measurement of a liver characteristic and is composed of more factors as fibrosis, inflammation and steatosis. Splitting into this components by using a mixed score may enhance Fibroscan's accuracy.