

Correlation between diabetes and risk of developing cirrhosis. Does the FIB-4 rise in diabetic patients?

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BACKGROUND-AIM

Hepatic steatosis, obesity and insulin resistance act as cofactors to cause liver damage. Liver cirrhosis is largely associated with diabetes mellitus (DM), their coexistence is related to a worse prognosis and greater complications of both entities. Non-invasive serum indices are currently available for fibrosis risk stratification, such as the FIB-4 index

($FIB-4 = \text{Age}(\text{years}) \times \text{AST}(\text{U/L}) / [\text{PLT}(10^9/\text{L}) \times \text{ALT}^{1/2}(\text{U/L})]$).

Assessment of the association between diabetes and risk of developing cirrhosis by measuring hemoglobin glycosylated (HbA1c) and the calculation of the FIB-4 test.

METHODS

Retrospective study from September to December 2022, which enrolled 5023 primary care samples, which included results of AST, ALT, platelets and HbA1c. AST and ALT determinations were performed in Cobas-c702 (Roche), platelets by flow cytometry (XN-10 Sysmex); and the HbA1c by High Performance Liquid Chromatography (HPLC). (D-100 BioRad). Classification as diabetics with HbA1c >6.5 and non-diabetics <6.5, according to the ADA (American Diabetes Association) criteria. We used the Mann-Whitney U test for statistical analysis (spss).

RESULTS

39.26% were diabetics (males 53%; females 47%). Age Median (p25-p75) diabetic patients: 68 years (59-76). FIB-4 median (p25-p75) were for diabetics (1,39 [0,88-2,62]) and non-diabetic (1,16 [0,58-2-12]). Using Mann-Whitney U test was observed statistically significantly different median FIB-4 score between categories ($p < 0.0001$).

	Diabetic	Non-Diabetic	
N (%)	1972 (39 %)	3051 (61 %)	
Males	1021 (53)	1403 (46)	
Females	951 (47)	1647 (54)	
Years old			
Median (p25-p75)	68 years (59-76)	62 years (53-71)	
	Diabetic	Non-Diabetic	Mann-Whitney U test
FIB-4 Median	1,39 [0,88-2,62]	1,16 [0,58-2-12]	$p < 0.0001$

CONCLUSIONS

Despite of, FIB-4 score has worse negative predictive value in diabetic population (between 11% to 20% of diabetic people with advanced fibrosis showed FIB-4 < 1.30), our study shows diabetic patients are at higher risk of developing fibrosis (FIB-4 1,39 vs 1,16).

It would be interesting to expand the necessary tests for the calculation of FIB-4 index in those patients who have high values of glycosylated hemoglobin in order to detect possible cirrhosis early.

