DIVERGENT EXPRESSION OF LIVER AND BRAIN INJURY IN ALCOHOL DEPENDENT COHORT

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Introduction and Aims: Alcohol can cause both liver and brain injury. More insight into the pathogenic role of alcohol is needed, including its link to the two organs along the putative liver brain axis. The present study aims to characterise a cohort of alcohol dependent patients for evidence of liver and brain injury by screening for liver fibrosis and cognitive impairment respectively to enable further research into alcohol related harm.

Design and Methods: Consecutive patients aged 18 to 65 receiving treatment for alcohol dependence were screened for liver fibrosis by Fibro Scan using M and LX Probes. The liver stiffness cut-offs were F ≥ 7.8, F ≥ 11.6 and F ≥ 22.7 kPa for fibrosis stage F2, F3 and F4 respectively. Cognitive function was screened with the Montreal Cognitive Assessment (MoCA) on patients at least 2-day abstinent from alcohol and designated as impaired if scored < 26. Patients with dependence on substances other than alcohol, acute intoxication, withdrawal symptoms, history of Wernicke-Korsakoff's syndrome, Alzheimer's disease, recent traumatic brain injury, brain tumour, strokes or pregnancy were excluded.

Results: Of the 100 alcohol dependent patients, concurrent liver and brain injury was found in 6% - 18%, depending on the threshold used in terms of fibrosis stage (Table 1). Almost half of the cohort demonstrated divergent expression of liver and brain injury, most notably, 38% had cognitive impairment but not advanced liver fibrosis. Half of the cohort had cognitive impairment while 24% had advanced liver fibrosis (F3 – F4).

Discussion: Contrary to the putative liver brain axis in alcohol related harm, concurrent injury secondary to alcohol was observed only in the minority. Divergent expression of injury in liver and brain provides opportunities for further research using differential expression on various platforms including genome wide association studies. Additionally, the significant proportion of patients with cognitive impairment and advanced fibrosis suggests a need for system wide screening. Patients with advanced fibrosis need to be on a surveillance program for liver cancer.

	F < 7.8	F ≥ 7.8	Total
MoCA ≥ 26	33	17	50
MoCA <26	32	18	50
Total	65	35	100

	F < 11.6	F ≥ 11.6	Total
MoCA ≥ 26	38	12	50
MoCA <26	38	12	50
Total	76	24	100

	F < 22.7	F ≥ 22.7	Total
MoCA ≥ 26	44	6	50
MoCA <26	44	6	50
Total	88	12	100

Table 1.