

Title: Long term outcomes of autoimmune liver disease overlap syndromes and predictors of survival

Authors: Dujinthan Jayabalan^{1,2}, Yi Huang¹, Luis Calzadilla Bertot^{1,2}, Malik Janjua¹, Bastiaan de Boer³, John Joseph³, Wendy Cheng^{2,4}, Simon Hazeldine⁵, Briohny W Smith¹, Gerry C MacQuillan^{1,2}, Michael C Wallace^{1,2}, George Garas^{1,2}, Leon A Adams^{1,2}, Gary P Jeffrey^{1,2}

Affiliations: ¹Department of Hepatology, Sir Charles Gairdner Hospital. ²Medical School, University of Western Australia. ³Department of Anatomical Pathology, PathWest Laboratory Medicine. ⁴Department of Gastroenterology and Hepatology, Royal Perth Hospital, ⁵Department of Gastroenterology and Hepatology, Fiona Stanley Hospital

Corresponding Author: Gary Peter Jeffrey, Professor, MD W.Aust., FRACP, MRCP(UK), Address: 5th Floor, Harry Perkins Institute of Medical Research, 6 Verdun Street, Nedlands, WA 6009, Australia. Email: gary.jeffrey@uwa.edu.au

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Author Contributions:

The authors confirm their contribution to the paper as follows: study conception and design: D.J. and G.P.J.; acquisition of data: D.J. and Y.H.; analysis and interpretation of results: D.J. and Y.H.; draft manuscript preparation: D.J.; critical revision of the manuscript for important intellectual content: G.P.J and L.A.A; statistical analysis: D.J., L.C.B and Y.H; administrative support: Y.H., L.C.B, M.J., B.d.B., J.J., W.C., S.H., B.W.S., G.C.M., M.C.W., G.G., L.A.A; study supervision: G.P.J.; All authors reviewed the results and approved the final version of the manuscript.

Key Words: autoimmune liver disease overlap syndromes, liver outcome score, liver-related death, Hepascore, autoimmune hepatitis, primary biliary cholangitis, primary sclerosing cholangitis.

Supplementary Table 1: Univariate Cox regression of risk factors of liver-related mortality in patients with all autoimmune liver disease overlap syndromes (AILDOS), AIH-PBC and AIH-PSC

Risk Factors	AILDOS		AIH-PBC		AIH-PSC	
	HR (95% CI), standard error	p-value	HR (95% CI), standard error	p-value	HR (95% CI), standard error	p-value
Age	1.01 (0.96, 1.05), 0.198	0.800	1.08 (0.987, 1.18), 0.048	0.094	0.950 (0.861, 1.048), 0.048	0.305
Male	0.90 (0.20, 4.06), 0.692	0.893	1.44 (0.185, 11.2), 1.50	0.728	0.691 (0.068, 7.071), 0.820	0.755
Hepascore	240.5 (0.42, 136411)	0.090	N/A	1.000	27.8 (0.003, 233154.8), 128	0.471
LOS	1.37 (1.03, 1.82), 0.256	0.030	1.56 (1.02, 2.38), 0.338	0.040	1.370 (0.716, 2.624), 0.454	0.342
MELD	1.37 (0.934, 2.00), 0.265	0.108	1.221 (0.711, 2.096), 0.337	0.468	N/A	N/A
Na-MELD	1.27 (0.934, 1.73), 0.200	0.126	1.009 (0.670, 1.518), 0.210	0.966	3.261 (0.650, 16.4), 2.683	0.151
Mayo Score	2.25 (0.94, 5.39), 1.00	0.068	2.42 (0.76, 7.75), 1.44	0.136	2.79 (0.49, 15.8), 2.47	0.246
WCC	0.986 (0.996, 1.07), 0.02	0.947	1.09 (0.478, 2.48), 0.458	0.838	1.080 (0.640, 1.823), 0.288	0.772
Hb low	5.20 (1.16, 23.44), 4.00	0.032	10.8 (0.967, 120.9), 13.3	0.053	1.732 (0.235, 12.78), 1.766	0.590
Platelet	0.996 (0.986, 1.01), 0.005	0.418	0.997 (0.984, 1.01), 0.006	0.654	0.995 (0.981, 1.010), 0.007	0.532
ALT	0.998 (0.992, 1.00), 0.001	0.407	0.997 (0.989, 1.004), 0.003	0.416	1.058 (0.989, 1.131), 0.036	0.103
ALP	1.001 (0.998, 1.004), 0.001	0.395	1.000 (0.995, 1.004), 0.002	0.979	1.025 (0.988, 1.064), 0.019	0.184
ALP/AST ratio	0.869 (0.500, 1.51), 0.245	0.618	0.800 (0.424, 1.511), 0.259	0.493	58.23 (0.112, 30219.0), 185.75	0.203
Ferritin	1.000 (0.992, 1.001), 0.004	0.963	0.999 (0.989, 1.008), 0.005	0.778	1.071 (0.855, 1.342), 0.123	0.550
Transferrin	0.925 (0.787, 1.08), 0.08	0.340	0.912 (0.730, 1.140), 0.104	0.420	N/A	N/A
AMA	0.232 (0.03, 1.89), 0.249	0.173	0.231 (0.024, 2.260), 0.269	0.208	N/A	N/A
SMA	0.520 (0.122, 2.22), 0.385	0.377	0.771 (0.069, 8.577), 0.948	0.431	N/A	N/A

SMA-VGT	0.562 (0.07, 4.71), 0.609	0.595	N/A	N/A	0.849 (0.080, 9.006), 1.023	0.892
LKM-1	N/A	N/A	N/A	N/A	N/A	N/A
pANCA	0.834 (0.158, 4.39), 0.706	0.830	1.473 (0.130, 16.7), 1.826	0.755	0.429 (0.044, 4.199), 1.329	0.467