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The novel fibrosis biomarker LG1M is prognostic for long-term readmission after AKI

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NORDIC BIOSCIENCE

INTRODUCTION

Acute Kidney Injury (AKI), survivors are at increased risk of long-term adverse outcomes, including readmission to hospital. Pathophysiological consequences of AKI, include extracellular matrix (ECM) remodelling. Tools to monitor the long-term health risk of patients after AKI are needed to improve patient outcome.

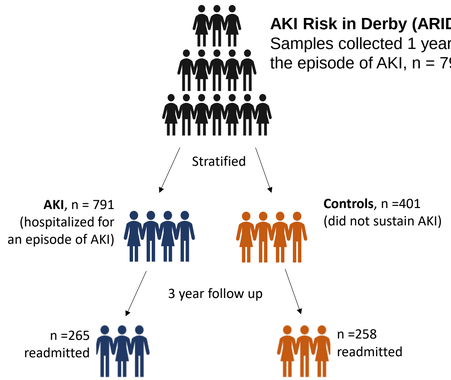
AIM

We investigated the potential of the novel ECM remodelling biomarker LG1M, reflecting laminin degradation mediated by MMP-9, as a prognostic marker for readmission after AKI.

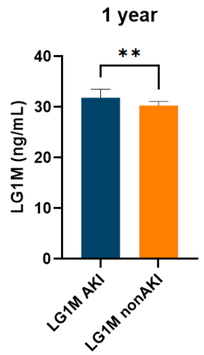
METHOD

- LG1M was measured in plasma samples from 791 patients from the AKI Risk in Derby (ARID) study, collected 1 year after the episode of AKI using the **nordicLG1M™** ELISA assay.
- Correlations of LG1M levels with age, serum creatinine, eGFR, PCR, ACR, and CRP were tested with Spearman rank correlation (all variables measured at year 1). Uni- and multivariate Cox regression analyses were used to establish the association of LG1M with the risk of readmission.

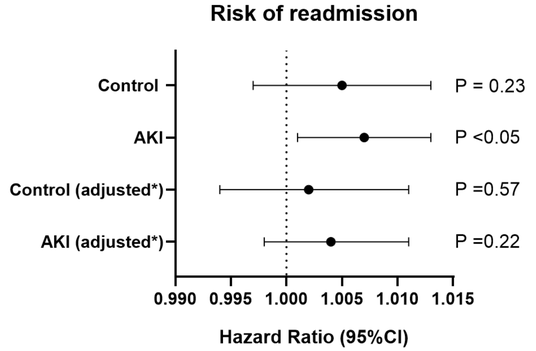
RESULTS



Correlations at year 1		AKI group		Control group	
Biomarker	Variables	rho	p-value	rho	P-value
LG1M	Age	0.16	**<0.01**	0.08	0.13
	sCr	0.33	**<0.0001**	0.22	**<0.0001**
	eGFR	-0.35	**<0.0001**	-0.22	**<0.0001**
	PCR	0.24	**<0.0001**	0.09	0.07
	ACR	0.23	**<0.0001**	0.06	0.22
	CRP	0.01	0.85	0.09	0.06



LG1M levels were significantly higher in the AKI group (median [IQR]=31.9 [25.7-42.8] ng/mL) compared to the control group (median [IQR]=30.3 [24.9-37.2] ng/mL, P<0.01), Mann-Whitney test.



*Univariate Cox model for the **association of LG1M and risk of readmission** after 3 years: AKI group: (HR [95% CI]=1.007 [1.001-1.013], and control group: (HR [95% CI]=1.005 [0.997-1.013]. Cox model **adjusted for*** age, sex, ACR, and eGFR measured at year 1 as well as baseline CKD and diabetes status. AKI group (HR [95% CI]=1.004 [0.998-1.011], and control group (HR [95% CI]=1.002 [0.994-1.011]*

CONCLUSIONS

Circulating levels of LG1M were elevated in AKI patients 1 year after the AKI episode and correlated with markers of kidney function in the AKI group and to a lower extent in the CKD control group.

In the AKI group, LG1M was associated with the risk of readmission, even though the significance of the association was lost in adjusted analyses.

This biomarker, quantifying circulating levels of a laminin fragment, may reflect injury to the basement membrane (of which laminin is a major component) after AKI, which was associated with an increased risk of worse outcome in patients that experienced an episode of AKI.

CONTACT INFORMATION

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