Title: **CORRELATION BETWEEN SERUM HEPCIDIN LEVEL AND STAGES OF CHRONIC KIDNEY DISEASE**

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INTRODUCTION

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- Chronic Kidney Disease has been associated with significant mortality and disability.

- Anemia is one of the significant morbidity of chronic kidney disease.

- Despite significant numbers associated with this clinical condition, biomarkers related to iron status and development of anaemia in these patients has not been looked upon extensively.

INTRODUCTION

- Few biomarkers have been studied, one of which is serum Hepcidin levels.

- We aimed to estimate the serum Hepcidin levels in patients with chronic kidney disease and to study its correlation with its successive stages.

METHODOLOGY

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- The study design was cross-sectional observational study.
- 51 patients of age >18ys of CKD KDIGO stage II to V was included in the study.
- Patients of obstructive uropathy or malignancy or transplant recipient are excluded from the study.
- The aim of the study was to correlate between serum Hepcidin levels and Stages of CKD in terms of eGFR.

RESULTS

Results

- There was a very strong negative correlation between eGFR and Serum Hepcidin, and this correlation was statistically significant (r = -1.0, p = <0.001).

Correlation	Spearman Correlation Coefficient	P Value
eGFR (mL/min/1.73m²) vs Hepcidin (ng/mL)	-1.0	<0.001

Table 1: Correlation between eGFR and Hepcidin

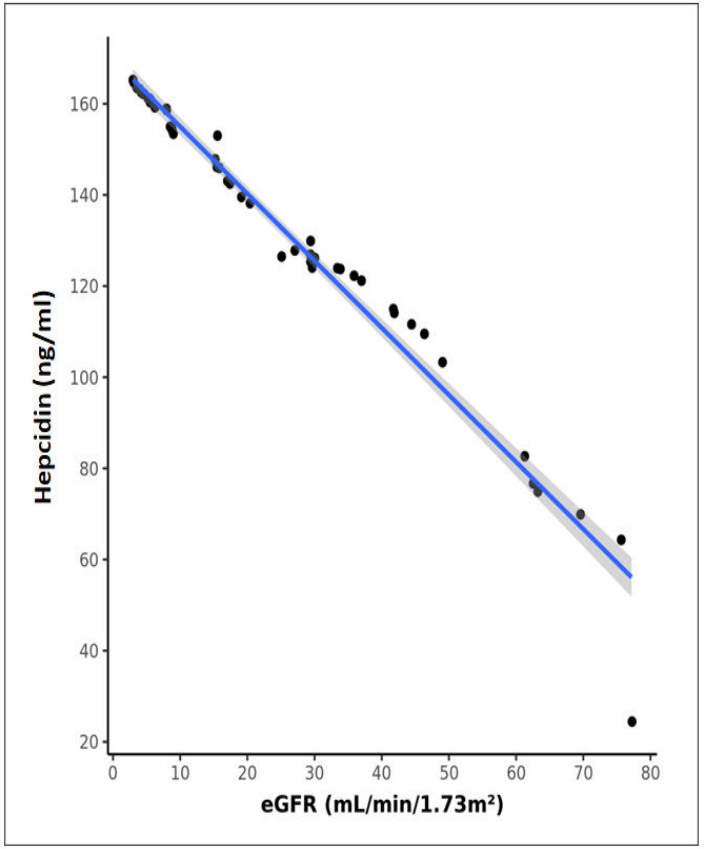

Fig 1: Scatter plot of eGFR vs Serum hepcidin.

Results

- The mean serum Hepcidin levels which were found in Stage II, III, IV and V of CKD patients was 65.48, 116.03, 136.61 and 160.37 ng/ml respectively.

- The Krushkal-Wallis Test also provided p value of <0.001 when stages and Hepcidin levels are correlated.

Hepcidin (ng/ml)	CKD Stage					Kruskal Wallis Test	
	1	2	3	4	5	χ2	p value
Mean (SD)	(NA)	65.48 (21.01)	116.03 (7.21)	136.61 (9.71)	160.37 (3.61)	45.102	<0.001
Pairwise Comparison of Subcategories of CKD Stage						Adjusted P Value	
2 - 3						0.916	
2 - 4						0.029	
3 - 4						0.235	
2 - 5						<0.001	
3 - 5						<0.001	
4 - 5						0.002	

Table 2: Comparison of the 5 Subgroups of CKD Stage in Terms of Hepcidin

Results

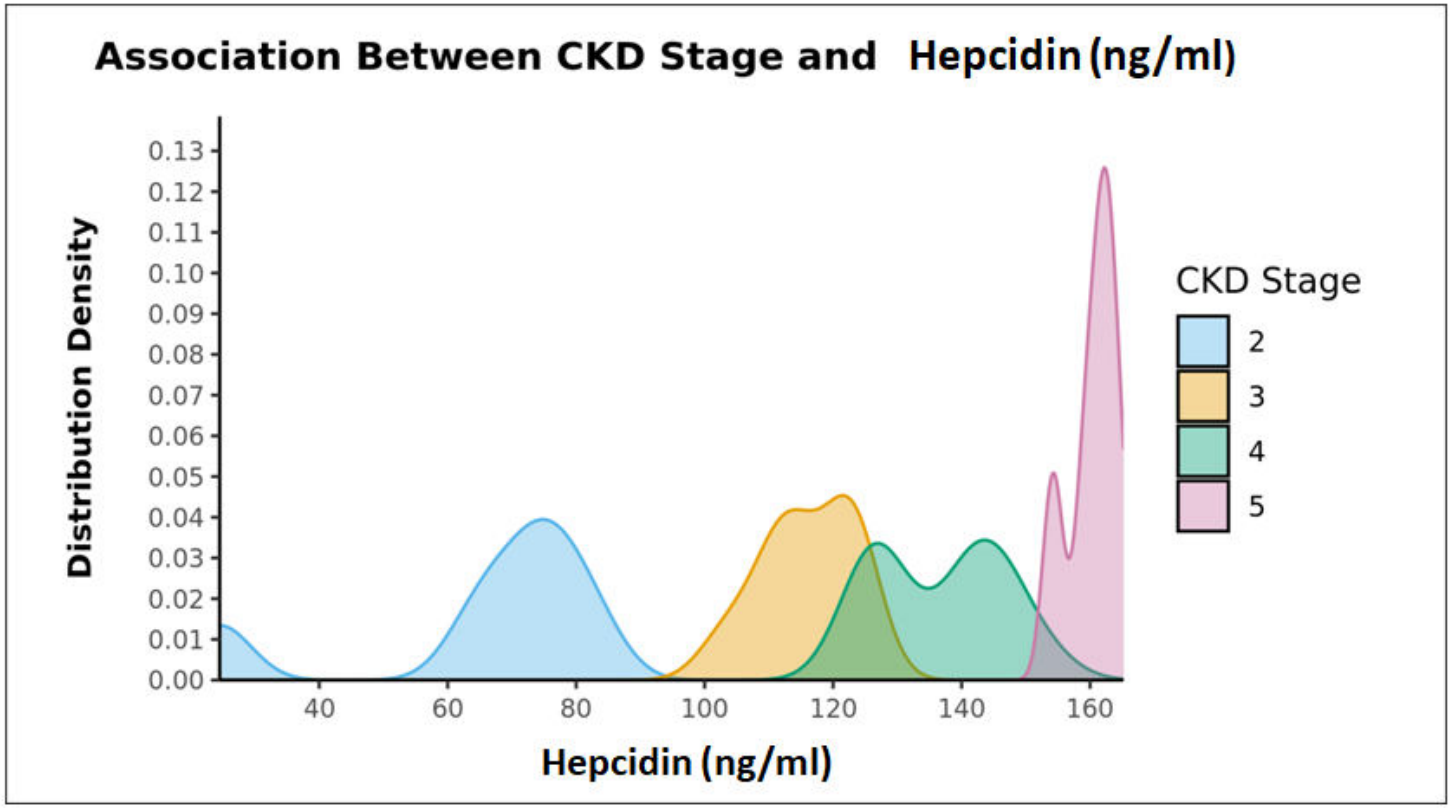

Fig 2: Density plot comparing stages of CKD in terms of Serum Hepcidin

DISCUSSION

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- . Future research is needed to investigate whether derangement in other parameters of iron profile is associated with increased progression of disease and development of EPO resistance in patients with Chronic Kidney disease

- A newly found HIF pathway of Hepcidin modulation and ongoing trials of various drugs targeting this pathways are available in the market.

- Well planned prospective studies with serial measurements of serum Hepcidin and its association with clinical deterioration could be done to elucidate its role as a prognostic marker in patients with Chronic Kidney Disease.

CONCLUSION

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- There was significant positive correlation of serum Hepcidin with the stages of CKD ($P < 0.001$) and the levels of serum Hepcidin were found to be significantly higher as the stage increased.

- Thus, serum Hepcidin may be used as a marker of iron metabolism, prognosis and progress of disease in the CKD patients.