HRS prevalence and mortality in different CKD stages

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BACKGROUND:

- Hepatorenal syndrome (HRS) is a life-threatening complication of advanced cirrhosis with an 85% three-month mortality.
- However, the prevalence and mortality of HRS in relation to different stages of chronic kidney disease (CKD) are not well studied.

METHODS:

- We utilized the 2019 NIS database to identify all adult (>18 years) patients with CKD (N18) and HRS (K76.7) using appropriate ICD-10-CM codes.
- We categorized chronic kidney disease into CKD I (GFR >=90 ml/min), CKD II (GFR=60-89 ml/min), CKD III (GFR=30-59 ml/min), CKD IV (GFR=15-29 ml/min) and CKD V (GFR < 15 ml/min) using the ICD codes N18.1, N18.2, N18.3, N18.4 and N18.5 respectively.
- A univariate screen followed by multivariate logistic regression was performed to adjust for potential hospital and patient level confounders.

Stage II CKD has 8x higher odds of death if they develop Hepato-Renal Syndrome

RESULTS:

HRS IN CKD	TOTAL (TOTAL DIED)	PROPORTIONS (PROPORTION DIED)
CKD I	30 (0)	0.1% (0%)
CKD II	710 (105)	0.26% (14.78%)
CKD III	6904 (1059)	0.29% (15.35%)
CKD IV	3240 (535)	0.52% (16.51%)
CKD V	520 (85)	0.63% (16.34%)

CKD SUBTYPES w HRS	OR	P -VALUE	CONFIDENCE INTERVAL
CKD I	1		
CKD II	8.1	0.00	4.9-13.2
CKD III	5.7	0.00	4.9-6.7
CKD IV	5.1	0.00	4.1-6.3
CKD V	3.8	0.00	2.1-6.9

Discussion:

We would expect that the odds of mortality from HRS will increase as the CKD stage progresses. However, according to our study, patients with CKD stage 2 were found to have the highest odds of mortality with HRS compared to the other stages. This could be explained by patients with CKD stage 4 being on hemodialysis, which decreases pre-transplant mortality in HRS. The findings also suggest potential comorbidities confounding the higher mortality in patients with advanced-stage CKD. Some limitations of this study would include fewer patients in CKD stage 2, leading to a large confidence interval, thus requiring further evaluation with a possible prospective design.

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