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Implications of Hyponatremia on Myeloproliferative Neoplasms

J Jayakumar MD[1], M Ginjupalli MD[1], B Vachhani MD[1], D Nanavaty MD[1]
[1] The Brooklyn Hospital Centre, Brooklyn, New York, USA

Mount Sinai

BACKGROUND

Cerebral microcirculatory disturbances in myeloproliferative neoplasms (MPN) can cause hyponatremia due to salt wasting. Hyponatremia also occurs from renal salt wasting, SIADH and chemotherapy in MPN patients.

AIM

Whereas the effect of hyponatremia is well established in other malignancies including multiple myeloma, leukemia and solid cancers, its prognostic index in MPN remains understudied. We attempted to analyze the influence of hyponatremia on the in-hospital outcomes of MPN patients.

METHODS

- A retrospective analysis was formulated using the National -Inpatient -Sample (2016-2020).
- ICD-10 codes were used to identify variables. Effects of hyponatremia on morbidity, mortality, and secondary outcomes in MPN patients were compared.
- Categorical variables were compared using chi-square test, and continuous variables were compared using *t*-test.
- Multivariate regression analyses were performed adjusting for demographics, various patient and hospital-level characteristics, and relevant comorbidities

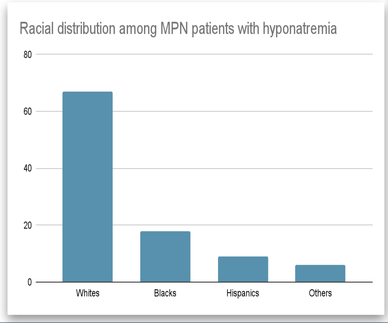
RESULTS

★ Mean age of MPN hospitalizations without hyponatremia was 61.65 years and with hyponatremia was 61.68 years, with 54.63% females in the hyponatremia group.

★ Among MPN hospitalizations, hyponatremia had statistically significant impact on mortality and other secondary outcomes such as cerebral edema, AKI, ventilator need, sepsis and septic shock. No statistically significant associations were found for altered mental status and thrombosis.

★ Hyponatremia also led to higher resource utilization in MPN evidenced by increased mean length of stay by 2.42 days (p=0.023) and increased hospital charges by $25,733 (p<0.001).

Total MPN hospitalizations: 1,015,405
Prevalence of hyponatremia: 18.83%
[N= 191,201]



Outcomes of MPN with and without hyponatremia	Adjusted Odds Ratio [OR]*	95% Confidence interval	P value
Mortality	1.42	1.32-1.54	<0.001
Cerebral edema	1.25	1.04-1.49	0.013
Acute kidney injury	1.90	1.83-1.96	<0.001
Ventilator need	1.28	1.07-1.46	0.015
Sepsis	1.76	1.70-1.83	<0.001
Septic shock	1.80	1.68-1.92	<0.001

*After adjusting for relevant confounders and various hospital and patient characteristics.

CONCLUSIONS

- The occurrence of hyponatremia in MPN hospitalizations is linked to various complications and appears to signal a poor prognosis based on our findings.
- Additional prospective research is necessary to confirm this correlation, and it is crucial to tailor management approaches to enhance outcomes and avert complications.

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CONTACT INFORMATION

Jayalekshmi Jayakumar, MD
Resident, PGY 2, Internal Medicine
The Brooklyn Hospital Centre
Email: jjayakumar@tbh.org
Phone: 718-250-8000