

Hyponatremia Following Embolotherapy for Well-Differentiated Neuroendocrine Tumor Metastases

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BACKGROUND

Case reports have described hyponatremia occurring after embolotherapy for well-differentiated neuroendocrine tumor liver metastases (WD-NETLM). No larger scale studies have been published.

AIM

Determine the risk and predictive factors for developing hyponatremia after TACE and TAE for patients with well-differentiated neuroendocrine tumor liver metastases.

METHODS

- Retrospectively reviewed all transarterial embolizations and chemoembolizations done for WD-NETLM at UCSF from 2012-2022 in which pre-procedure and post-procedure Na labs were obtained.
- In total, 185 procedures were performed on 102 patients.
- Logistic regression analysis were performed to determine significant predictors of severe (Grade ≥ 2) hyponatremia using the Markov correlation structure for repeated measures.

RESULTS

DISCUSSION

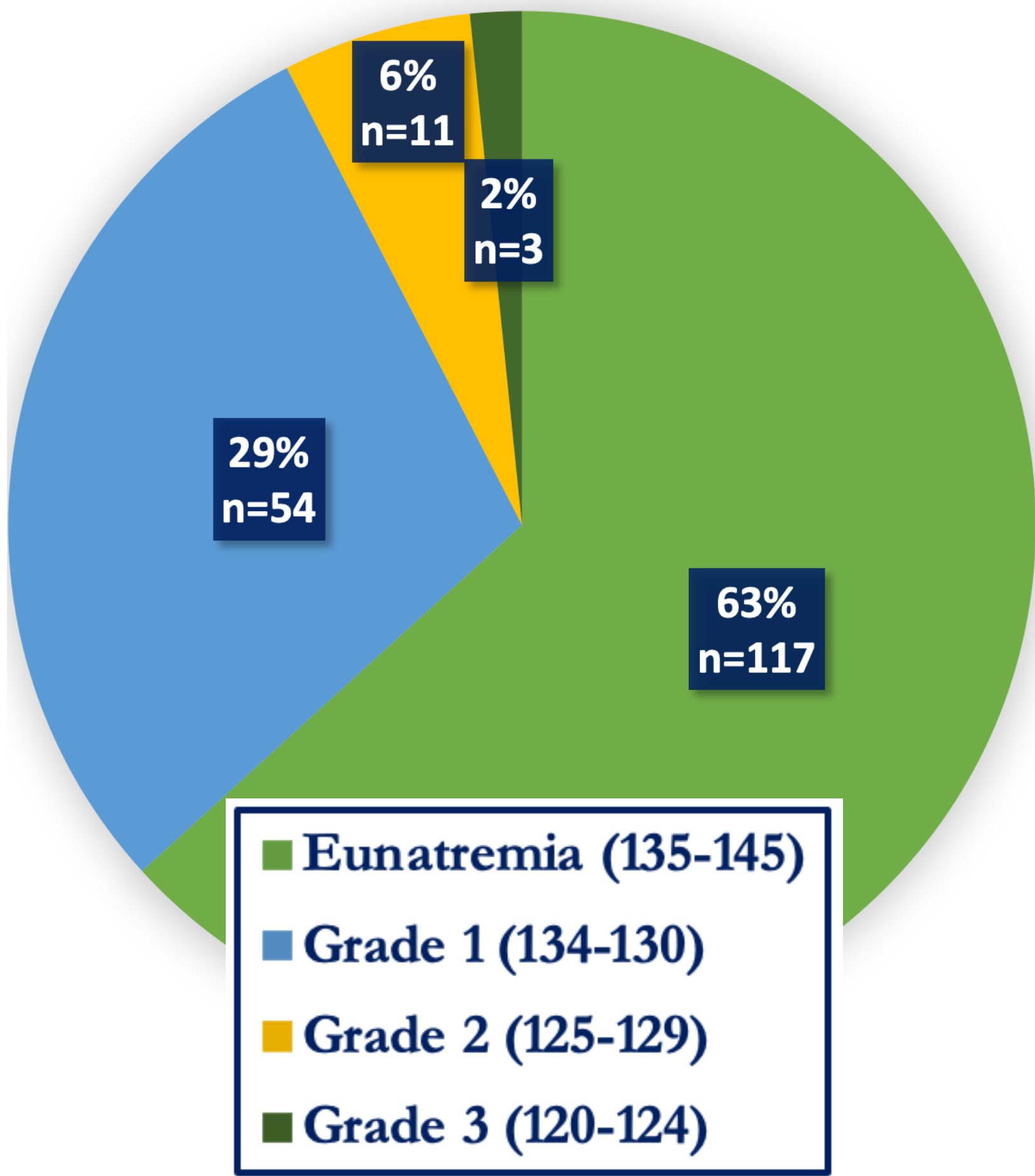
Hyponatremia was a common complication of embolotherapy for patients with NETLM. Hyponatremia was commonly due to SIADH. Predictors for hyponatremia after multivariate analysis included female gender and administering low volumes of fluids.

37% of embolotherapies were complicated by hyponatremia; 70% of cases that received diagnostic work-up were found to be due to SIADH

1. Patient Characteristics (n= 102)

Sex	
M	55
F	47
Median age; Range	64; (28-79)
Tumor location	
small bowel	54
pancreas	24
large bowel/rectum	7
Tumor WHO grade	
1	34
2	54
3	10

2. Post Embolotherapy Sodium Levels (N=185)



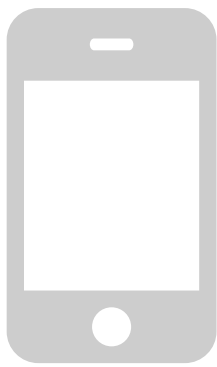
3. Multivariate Logistic Regression Analysis of Predictors of Severe Hyponatremia (Grades 2-4)

**Statistical significance with a p-value<.05

Variable	Odds Ratio	P-value	Confidence Interval
Female gender	.07	0.023**	[7x10⁻³, 0.07]
Weight	1.0	0.95	[0.96, 1.03]
On >2 antiemetics	1.2	0.81	[0.26, 5.6]
Balanced fluids given	9.9	0.022**	[1.4, 70]
Increasing fluids administered	3.9	0.035**	[0.07, 0.9]
Embolizing more liver segments	4.4	0.087	[0.8, 24]

4. Hospital Stay Length by Post-Procedural Sodium Grade

Post-Embolotherapy Sodium Group	Median Hospital Stay Length (days)	Range
Eunatremia	1	.63-11
Grade 1 Hyponatremia	1.2	.83-14
Grade 2-4 Hyponatremia	2.1	1.0-6



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