Does Presenting Facility and Race Impact Outcomes and Management of Pyloric Stenosis?

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INTRODUCTION

Hypertrophic Pyloric Stenosis (HPS) is a common surgical disease in infants. Traditionally, patients present within the first two months of life with projectile emesis, weight loss and severe dehydration with associated electrolyte abnormalities of hypokalemic, hypochloremic metabolic alkalosis. As ultrasound use has become more widely available, diagnosis of HPS has occurred earlier within the disease process. This has been evidenced by modern studies showing that the most common electrolyte profile in this patients is a normal potassium, CO2 and chloride. (Tutay) It is well described across a spectrum of disease processes that outcomes can be less favorable in patients with decreased access to healthcare and patients of racial minorities.

OBJECTIVES

We looked to assess if patients who presented from more rural or distant areas by means of hospital-to-hospital transfer versus directly to our facility affected initial presentation in regards to lab work and imaging characteristics as well as overall outcomes. We also looked to see if patient race factored into outcomes in this patient population

METHODS

We performed a single-center retrospective analysis of all patients who presented to our Children's Hospital with a diagnosis of HPS from 2015 to 2021. We assessed the transfer status versus if the patient presented directly to our facility. We looked for outcomes regarding age at diagnosis, presenting chloride and bicarb levels, pyloric thickness and channel length, time to OR in hours and hospital length of stay (LOS). We also measured the geographic distance from our facility using Google Maps to assess those same outcomes. Lastly, we looked at patient race to assess for patient presentation factors and outcomes.

RESULTS

Table 1: Outcomes in transfer versus direct presentation

	Transfer	Direct Presentation	p
N	80	51	
Age (days)	37.88	41.76	0.11
Time to OR (hours)	20.5	18.5	0.16
LOS	1.94	2.04	0.27
Pyloric thickness (mm)	4.6	4.45	0.4
Pyloric channel length (mm)	19.73	19.61	0.99
Presenting Cl	97.61	98.37	0.33
Presenting CO2	27.03	26.31	0.28
Distance from facility	91.9	26.9	<0.05

Table 2: Outcomes based on patient race

	Caucasian	Minority	p
N	89	42	
Age (days)	38.8	42.2	0.1
Time to OR (hours)	21	19.1	0.2
LOS	1.94	2.05	0.25
Pyloric thickness (mm)	4.56	4.71	0.84
Pyloric channel length (mm)	19.56	20	0.49
Presenting Cl	98.43	96.8	0.61
Presenting CO2	26.5	27.29	0.67
Distance from facility	62.1	76.14	0.25

We found no difference in any of the measured patient presentations and outcomes based on transfer status, distance from the hospital and patient race. Electrolyte panels, patient age and hospital length of stay were all statistically equal**.**

CONCLUSIONS

We found no significant difference in overall presentation status and patient outcomes based on patient race or their original presenting facility. While likely multifactorial, a contributing factor is likely the wide availability of ultrasound even at smaller facilities.

REFERENCES

1. Tutay GJ, Capraro G, Spirko B, Garb J, Smithline H. Electrolyte profile of pediatric patients with hypertrophic pyloric stenosis. Pediatr Emerg Care. 2013 Apr;29(4):465-8. doi: 10.1097/PEC.0b013e31828a3006. PMID: 23528507.

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