**BACKGROUND**

- Children with hypothalamic & suprasellar tumors are at risk for rapid weight gain, leading to hypothalamic obesity, often severe & refractory.
- No current standardized approach to prevention and intervention in this population.
- Children's Hospital Colorado (CHCO) multidisciplinary team, including endocrinology, lifestyle medicine (LM), neurosurgery, neuro-oncology, bariatric surgery, dietitians, developed clinical algorithm to identify and treat hypothalamic weight gain (Figure 1).
- Pilot study with overall goal to describe the CHCO population and assess for feasibility and intervention in this population.

**Specific Objectives:**

1. No current standardized approach to prevention or intervention in pediatric patients with hypothalamic tumors
2. To evaluate and report on factors associated with the development of hypothalamic obesity
3. To assess and report on the utility of new clinical algorithms to identify and treat hypothalamic obesity

**METHODS**

- Retrospective chart review
- Inclusion: ages 1-20y with hypothalamic tumor seen at CHCO from 2010-2020
- Group comparisons by T-tests, ANOVA, and chi-square
- Simple linear regression for comparison of BMI trend and for association between MRI score and delta BMI at 12 months and 30 months post-op

**RESULTS**

- No association of tumor type or tumor treatment with recent BMI category
- Hyperphagia documented more often in youth with obesity vs. those with overweight or normal weight (p=0.002)
- No difference in BMI trend between groups diagnosed before (n=45) and after (n=6) algorithm implementation (Figure 2)
- No association between MRI lesion score and delta BMI at 30 months post-op (Figure 3)

**CONCLUSIONS**

- Use of novel standardized algorithm for children with hypothalamic tumors is feasible, may improve weight gain
- Limitations: retrospective chart review, small sample size
- Further prospective study, including a larger population, needed to better determine predictors, standardized diagnostics, and effective treatments of obesity in this population

**Figure 1** – Hypothalamic Obesity Prevention and Intervention Protocol

**Figure 2** – BMI trend over time (months) for those diagnosed before (n=45, in red) and after (n=6, in blue) algorithm implementation (p=0.05)

**Figure 3** – Association between MRI lesion score and change in BMI at 30 months post-op (p=0.68)