

Pediatric Generalized Anxiety Disorder Can Predict Poor Responsiveness to BoNT-A Migraine Therapy

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Background

- Chronic migraines are a common, underdiagnosed condition in pediatric and adolescent populations with the potential for significant, negative impact on social and academic functioning.
- Understanding how anxiety affects migraines enables us to improve patient outcomes and quality of life.
 - Patients with migraines are more likely to have anxiety.¹⁻³
 - Anxiety correlates with higher severity and frequency of migraines.⁴
- Botulinum toxin type A (BoNT-A) injection is a commonly used prophylactic treatment for chronic migraine management.

Purpose

To assess the efficacy, safety, and predictors for poor-responsiveness of BoNT-A for chronic migraine in the pediatric population.

Methods

- A retrospective and prospective analysis of 37 patients at Dayton Children's aged 13-21 years old.
- Each received BoNT-A therapy for chronic migraine treatment.
 - Patients received standard 31 injection, 155 unit's protocol.
 - Four rounds of BoNT-A therapy with assessment every 3 months.

- Patients were divided into responders and non-responders and assessed.
 - Responders were defined as patients with a decrease in headache frequency of $\geq 50\%$ from baseline.
 - Generalized anxiety was defined as a GAD-7 score > 15 .
 - Variables including age, BMI, headache intensity, frequency, character, and side effects were also assessed.

Results

- Among the 34 patients enrolled, BoNT-A therapy was effective (figure 1).
 - The majority of patients (73%) responded to treatment.
 - Average headache frequency decreased from 18.6/28 to 9.9/28 days ($p < 0.001$).
 - Average headache intensity decreased from 8.1 to 4.3 ($p < 0.001$).

GAD anxiety score	All patients n (%)	Responders n (%)	Non-responders n (%)	P value
<15	22 (64.7)	19 (76.0)	3 (33.3)	0.04
>15	12 (35.3)	6 (24.0)	6 (66.7)	
Total	34 (100)	25 (100)	9 (100)	

Table 1. Response to BoNT-A Therapy and Presence of Generalized Anxiety Disorder

- Patients that did not respond the treatment represented the majority of patients with generalized anxiety disorder (67%) ($p = 0.040$) (figure 2 & table 1)

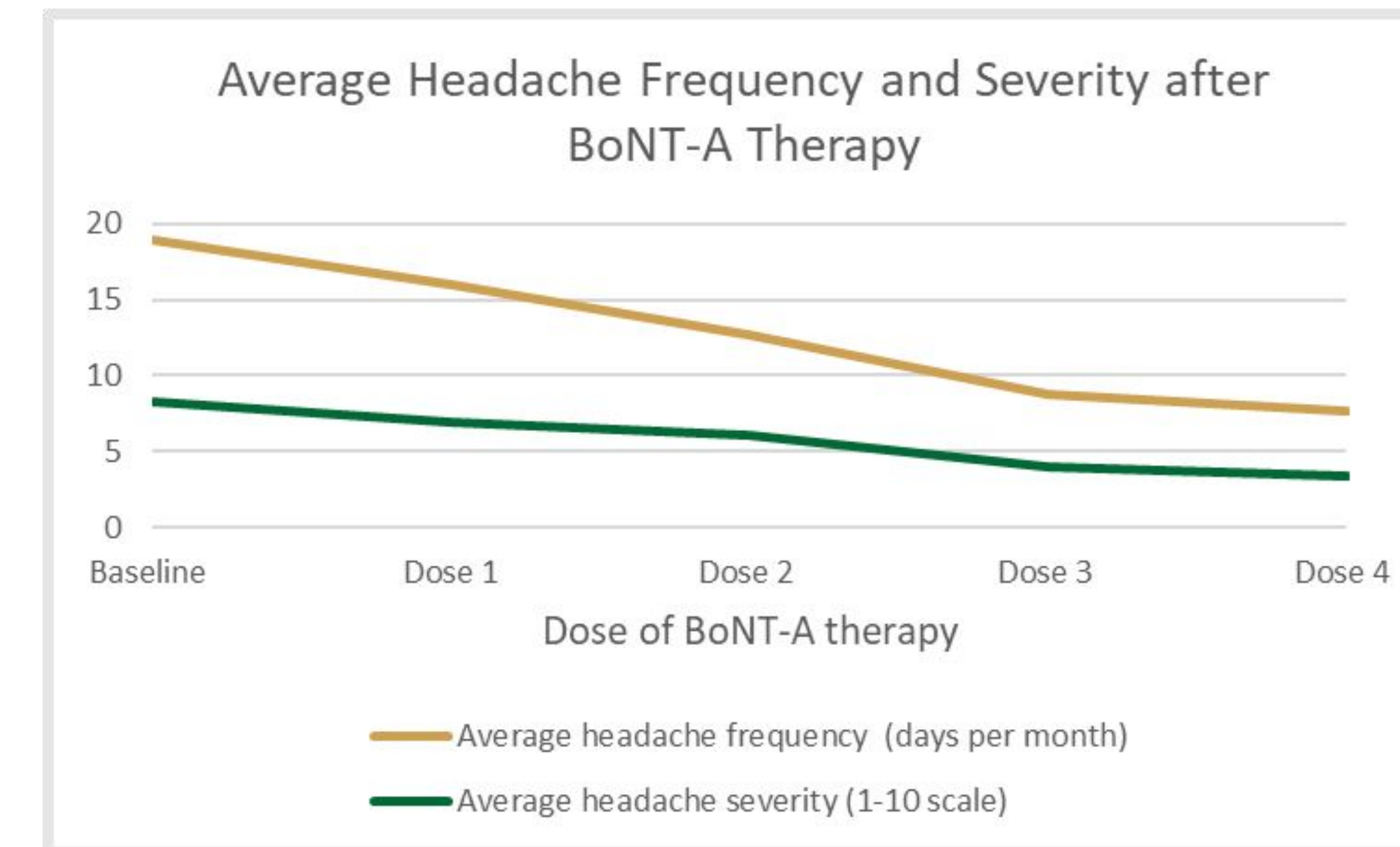


Figure 1

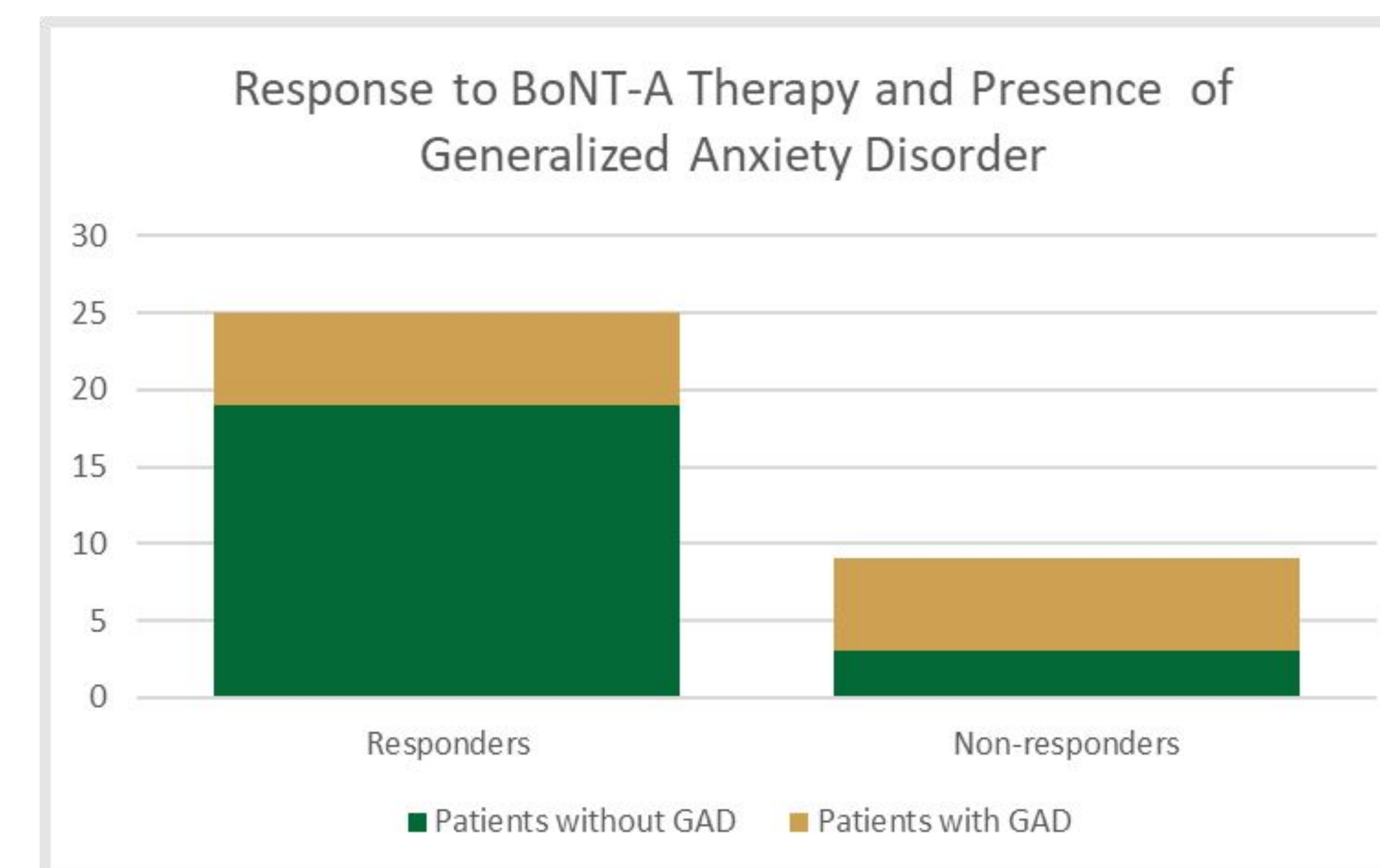


Figure 2

Conclusion

- BoNT-A remains a safe and effective therapy for pediatric patients with chronic migraines at 9 months of follow-up.
- Generalized anxiety disorder with GAD-7 score > 15 can be a major predictor of poor response to therapy.
 - This emphasizes the need for assessment and treatment of co-morbid psychiatric conditions like anxiety and depression as part of a chronic migraine treatment regimen.

Future Directions

- Future research on the effects of comorbid psychiatric conditions on migraine treatment is merited.
 - This is the first study establishing anxiety as a predictor for poor outcome after BoNT-A
 - Estimating the prevalence of co-morbid psychiatric conditions and their early identification will help create clinical algorithms to optimize outcomes
- Regarding the AAPI community, there is a lack of literature on migraines and the role of anxiety in the adult and pediatric population.^{5,6}

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