

Characteristics of patients referred to Headache Clinic at Le Bonheur Children’s Hospital

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Chronic headaches are common (≥30%) in children and adolescents. These headaches often limiting attendance and performance in school and decrease overall quality of life. In July 2017, a multidisciplinary Headache Clinic at LeBonheur Children’s Hospital was developed to treat children with chronic intractable headaches (CIH) uncontrolled by primary care management. 33 patients (14.2 ± 3.2 yrs; 27 female; 24 Caucasian, 6 African American; body mass index 24.0 ± 6.0 kg/m2; 52% had Medicare/Medicaid) were evaluated by neurology, physical therapy, and exercise physiology between 7/1/2017-12/15/2017. All referred patients had headaches ≥ 3days/week/≥ 3 months and attempted lifestyle modification and controller medication for ≥6 weeks. On average, patients tried 6 medications (currently taking 3 medications) to control headaches. Commonly prescribed medications (~30% each) are gabapentin, amitriptyline, and topiramate. Twenty (60.6%) patients have a family history of headache/migraine. One third of patients report headache symptoms consistent with severe disability while 58.3% and 8.3% report mild and moderate disability, respectively. CIH result in substantial negatively impact on school and activity participation. Children with CIH are difficult to treat effectively due to complexity of causative and contributing factors, and varying medication effectiveness. More research is needed to evaluate the effectiveness of specialty pediatric headache clinics.

Background

- Headaches affect 60% of adolescents and 10% of children have migraines
- Headaches are often debilitating
 - School absences, lower academic performance
 - Reduced participation in activities- after school clubs, athletics, sports
 - Quality of life- have concerns preventing them from a normal childhood experience
- Pediatric migraines involve not only the child but also caregivers
 - Missed school often means missed work
 - Doctor appointments
 - Medical expenses
- Treatment is difficult due to:
 - Varying response to medications= primarily effectiveness/improvement
 - Underlying genetic predispositions= family history
 - Lifestyle choices= sleep, diet, exercise, stress level
 - Mental/emotional factors
 - Underlying physiological traits
 - Different migraine triggers

- The purpose of this project was to describe the patients and the care delivered in a multi-disciplinary pediatric headache clinic at Le Bonheur



Methods Continued:

Participants:

- Comprehensive Headache Clinic patients (n= 37, 14 longitudinal measurement)
- Patients are evaluated by a medical provider (physician or nurse practitioner), a physical therapist, behavioral psychologist, and an exercise physiologist
- Eligibility criteria for Comprehensive Headache Clinic:
 - Chronic intractable headaches
 - At least 3 headache days /week for 3 months
 - Use of prophylactic medication at therapeutic dose for > 6 weeks without effectiveness
 - Attempt at least 3 of the following Lifestyle Modifications:
 - Drinks 64 oz. of water/day
 - Exercises 3 times a week for 30 min
 - Minimal/no caffeine intake
 - Eats 3 balanced meals per day
 - Sleep and wake up at same time daily
 - No more than three times a week using NSAIDS
 - Headache Diary for at least one month

Chart Review:

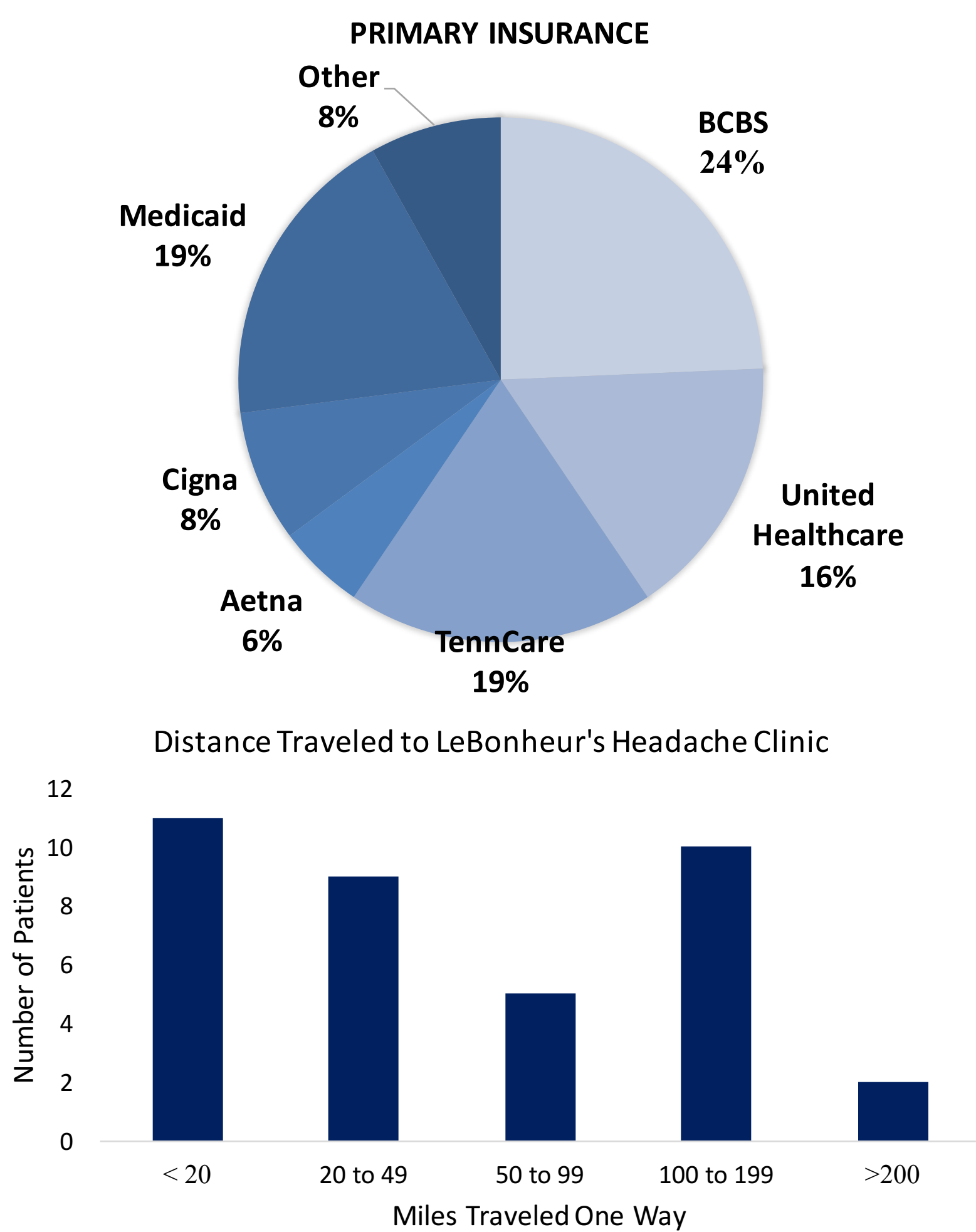
- All chart reviews were performed on medical provider notes collected between 7/1/2017 and 3/15/2018 in Powerchart Electronic Medical Record system (CERNER) by the same trained student
 - Parameters to be abstracted from the medical provider notes were established a priori with input from nurse practitioner specializing in pediatric neurology, and a pediatric neurologist

Data Analysis:

Descriptive statistics were calculated using Microsoft Office Excel (Redmond, WA)

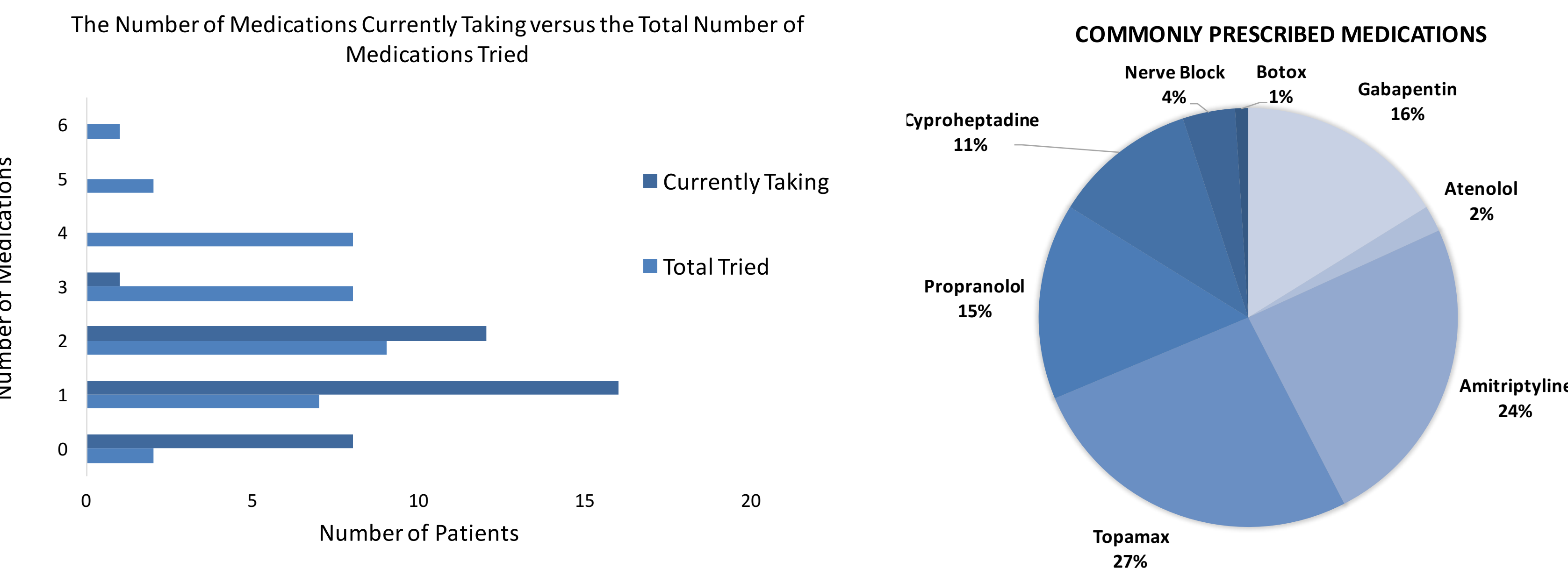
Results:

Patient Characteristics		Mean ± SD
Age (years)		14.3± 3.2
Body Mass Index (kg/m2)		24.2±5.7
Distance Traveled (miles)		68.3±65.2
Patient Vitals		
Heart Rate (bpm)		82.3± 14.2
Respiratory Rate (breaths/min)		17.7±2.2
Systolic Blood Pressure (mmHg)		112.5±10.7
Diastolic Blood Pressure (mmHg)		68.7±9.2
Temperature ()		36.7±0.2
Patient Demographics		n (%)
Sex	Female	30 (81.0)
	Male	7 (19.0)
Race	African American	8 (21.6)
	Caucasian/White	28 (75.7)
	Unknown	1 (2.7)



Pediatric Migraine Disability Assessment (PedMIDAS)

Individual Questions	Mean ± SD
Q1 How many full days of school were missed in the last 3 months due to headaches?	4.5± 7.5
Q2 How many partial days of school were missed in the last 3 months due to headaches (do no include full days counted in the first question)?	3.2±4.3
Q3 How many days in the last 3 months did you function at less than half of your ability in school because of a headache (do no include full days counted in the first two questions)?	6.6±6.5
Q4 How many days were you not able to do things at home (i.e. chores, homework, etc.) due to a headache?	7.9±7.9
Q5 How many days did you not participate in other activities due to headaches (i.e. play, go out, sports, etc.)?	7.2±7.9
Q6 How many days did you participate in these activities, but functioned at less than half your ability (do no include full days counted in question 4)?	9.1±13.9
PedMIDAS Total Score	38.8±35.6



Clinical Impressions:

- 20 patients (54%) have a family history of headaches or migraines in the immediate or close extended family
- 3 out of 14 patients with a follow up visit showed significant improvement in headache related symptoms
- 3 out of 14 return patients with a follow up visit showed moderate improvement in headache related symptoms
- There is ongoing data collection to evaluate patient care and improvement

Conclusions:

- Patients are willing to be seen in a comprehensive headache clinic
- Headaches affect quality of life- school performance/ activity participation
- Medications are moderately effectively treating CIH
- The primary population effected is white females around 14 years of age
- There is demand for the Comprehensive Clinic, distance treatments may be a viable alternative to reduce travel and improve accessibility for some patients
- Future directions include alternative treatment possibilities including HRV biofeedback, nutrition interventions, and lifestyle changes

