

Evaluation of the Computerized Headache Assessment Tool (CHAT-3) for Diagnosis of Cluster Headache



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Introduction

- Cluster headache is a rare but extremely severe and disabling headache.
- Despite characteristic features, the diagnosis of cluster headache is often delayed for years.
- There are few computerized screeners for headache diagnosis, and none has been tested specifically in individuals with cluster headache.
- The **Computerized Headache Assessment Tool (CHAT-3)** is an algorithm-based screener for primary headache diagnoses.
 - CHAT-3 mimics human logic by presenting questions based on previous answers.
 - CHAT was previously validated in a primary care population, and found to be highly accurate for the diagnosis of migraine (episodic and chronic).
- We sought to evaluate CHAT-3 in a population of individuals with known cluster headache.

Methods

- Subjects were recruited from: www.Clusterbusters.org
- **Phase 1.** Individuals whose CHAT-3 diagnosis differed from their known clinical diagnosis were asked to participate in a diagnostic interview.
- **Phase 2.** Based on interviews, and review of surveys without interviews, changes to the algorithm of CHAT-3 were made.
- All subjects completing CHAT-3 are asked to participate in a diagnostic interview.

Results

Phase 1.

- 100 subjects initiated and 93 completed the survey.
- Mean age 43.2; 65% male
- 17 completed a diagnostic interview.
- 23 with clinical diagnosis of cluster headache discordant from CHAT-3 diagnosis
 - 3 probable cluster headache
 - 7 trigeminal autonomic cephalgia (nos)
 - 13 other (migraine, TTH, or no diagnosis)

Phase 2. At present:

- 17 surveys/5 interviews
- CHAT-3 diagnoses:
 - 12 cluster headache
 - 5 migraine (episodic or chronic)
 - 8/9 correct diagnoses based on interview (5) or self-report (3)
 - 1 mis-diagnosis (duration > 4 hours)

Results

Table 1: Reasons for CHAT mis-diagnosis of confirmed cluster (* 2 in both categories)

CHAT-3 Diagnosis	N=23
Attack frequency < qod	7*
Duration <15minutes	1
Duration >4 hours	10*
#attacks/day > 6	6
Location "diffuse"	1

Discussion

- The most common reasons for CHAT not to diagnosis cluster headache in Phase 1 were:
 - frequency less than 15 days/month
 - duration indicated as >4 hours, or "never goes away"
- Interviews often revealed discrepancies with responses to CHAT-3
- The algorithm has been modified to screen for cluster headache in individuals with cycles of headaches, regardless of stated duration or frequency of headache.
- Although not systematically reported, average time to complete survey is ~10 minutes.

Conclusion

- Strict adherence to ICHD-3 criteria reduces the sensitivity of an algorithm to recognize cluster headache
- Preliminary results in Phase 2 indicate the revised version to be highly **sensitive** for the diagnosis of cluster headache.
- **Specificity** of CHAT-3 for cluster headache would require testing in a general population.
- CHAT-3 is a time efficient headache screener.
- Use of CHAT-3 on general headache websites may promote earlier recognition of cluster headache. CHAT-3 may also be useful as a screener for research studies.

www.headachediagnosis.org

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Web support and programming by: www.patienttools.com