Epilepsy & Behavior 19 (2010) 82–85

Contents lists available at ScienceDirect

Epilepsy & Behavior

journal homepage: www.elsevier.com/locate/yebeh

Brief Communication

Differentiation of attention-related problems in childhood absence epilepsy

Clemente Vega [a], Matthew Vestal [b], Matthew DeSalvo [b], Rachel Berman [c], MiHae Chung [d], Hal Blumenfeld [a,b,e,*], Marisa N. Spann [f,g]

[a] Department of Neurosurgery, Yale University School of Medicine, New Haven, CT, USA
[b] Department of Neurology, Yale University School of Medicine, New Haven, CT, USA
[c] Department of Interdepartmental Neuroscience, Yale University School of Medicine, New Haven, CT, USA
[d] Catholic University of Korea, School of Medicine, Seoul, Korea
[e] Department of Neurobiology, Yale University School of Medicine, New Haven, CT, USA
[f] Department of Psychiatry, Columbia Medical Center, New York, NY, USA
[g] New York Psychiatric Institute, New York, NY, USA

ARTICLE INFO

Article history:
Received 30 March 2010
Received in revised form 8 June 2010
Accepted 9 June 2010
Available online 2 August 2010

Keywords:
Childhood absence epilepsy
Attention
Hyperactivity
Seizures
Behavior

ABSTRACT

The current study examined the specific types of attention-related problems children with childhood absence epilepsy (CAE) experience and the role of disease factors in the development of attention-related problems. Thirty-eight subjects with CAE and 46 healthy controls, aged 6 to 16, participated in the study. The Behavior Assessment System for Children (BASC) was completed by parents, and the Attention Problems and Hyperactivity subscales were used to characterize the problems of children with CAE. Item analysis within the subscales revealed that children with CAE demonstrate higher rates of hyperactive (overactivity and fidgetiness) and inattentive (forgetfulness and distractibility) problems, and require more supervision. Within-CAE-group analyses revealed that those who were actively having seizures were more impatient and those with a longer duration of illness were less proficient in completing homework. Children with CAE are at risk for certain inattentive and hyperactive problems, which can differ depending on duration of illness and active seizure status.
© 2010 Elsevier Inc. All rights reserved.

1. Introduction

Childhood absence epilepsy (CAE) accounts for 10 to 15% of pediatric epilepsy diagnoses [1]. Prior studies point toward the presence of interictal attention problems, which can interfere with academic performance and daily functioning [2–4]. The current study investigates attention-related problems that might differentiate children with CAE from their healthy peers and the role of disease in attention-related problems in this group.

Williams et al. [5] investigated the sensitivity of the Attention Deficit Disorder Evaluation Scale—Home Version (ADDES-HV) in correctly classifying children with seizures compared with ADHD. Two items differentiated the groups, remain on task and complete homework, showing 79% sensitivity and 92% specificity; however, both groups shared staring behaviors. In another study, Williams et al. [6] examined the prevalence of ADHD symptoms in newly diagnosed pediatric epilepsy using the ADDES-HV, and compared changes following attainment of seizure control. Nineteen percent of their sample met clinical diagnostic criteria for ADHD, combined type, based on parent report. They also found the severity of inattention or hyperactivity/impulsivity symptoms remained unchanged despite good seizure control on medication. Further, there was no difference in symptom severity based on seizure type or medication prescribed. Despite unequivocal data that the incidence of ADHD symptoms is higher in pediatric epilepsy including CAE, to our knowledge, no prospective study has identified the specific symptom characteristics of inattention and hyperactivity in CAE that might differentiate children with CAE from healthy controls.

Within the literature, findings are mixed as to whether interictal attention problems are a consequence of seizures or are part of the disease [7,8]. Clarification of the role of disease factors in attention-related problems will help improve identification of behavior problems, leading to earlier diagnoses and/or accommodations in the academic setting.

The current study investigated attention and hyperactive symptoms in children with CAE, testing the hypotheses that: (1) children with CAE have higher levels of attention and hyperactive problems compared with healthy controls, and (2) those with CAE with a longer duration of illness, younger age at onset, and active seizures have higher levels of problems.

2. Method

2.1. Subjects

The sample consisted of 38 children with CAE and 46 healthy controls (HCs), aged 6 to 16. Following institutional review board

* Corresponding author. Professor of Neurology, Neurobiology and Neurosurgery, Yale University School of Medicine, P.O. Box 208018, New Haven, CT 06510, USA.
E-mail addresses: hal.blumenfeld@yale.edu (H. Blumenfeld), spannma@childpsych.columbia.edu (M.N. Spann).

1525-5050/$ – see front matter © 2010 Elsevier Inc. All rights reserved.
doi:10.1016/j.yebeh.2010.06.010

approval, children with CAE were recruited from area neurologists and electroencephalographic laboratories, and HCs from postings at the university and in newspapers. Subjects with a history of psychiatric (including ADHD) or medical (including other epilepsies) disease were excluded. CAE diagnosis was confirmed by the principal investigator.

2.2. Procedure

The study was staffed by trained bachelor and/or doctoral research assistants. Subjects and parents provided informed consent and assent.

Parents completed a series of forms including the seizure history form developed by study investigators. They reported age at diagnosis, from which duration of illness was calculated (age at diagnosis – current age). Current seizure status was coded categorically as controlled (no seizures for 6 months) or active (seizure occurrence). Current medication was obtained. Attention-related symptoms were identified with the Behavior Assessment System for Children (BASC) Attention Problems (ATT) and Hyperactivity (HYP) subscales and their items [9]. Subscale scores are continuous and subscale items are ordinal variables. Socioeconomic status (SES) was obtained using the Hollingshead Four-Factor Scale [10]. Study children were administered the two-subtest Wechsler Abbreviated Scale of Intelligence [11] (WASI) to obtain an estimate of IQ.

2.3. Data analyses

Data were analyzed in SPSS Version 17.0 (www.spss.com). Frequency and descriptive statistics are provided. χ^2 and analysis of variance (ANOVA) were used to assess for potential confounds of age, gender, SES, or IQ. As there were significant group differences in age and IQ, these were used as covariates during hypothesis testing. Statistics were calculated to determine group differences on the ATT and HYP subscales and items. Discriminant function analysis was used to determine sensitivity and specificity of ATT and HYP subscale items in classifying the two groups, using significant items at the bivariate level.

Analyses within the CAE group that assessed seizure status were performed using ANOVA or the Mann–Whitney test. Pearson and Spearman rank correlations were used to assess the relationship of duration of illness and age at disease onset with subscales and items.

3. Results

3.1. Descriptive statistics

Sample characteristics are listed in Table 1. The majority of subjects with CAE and HCs were female and had middle or higher SES. There was a significant mean difference between the groups in age and estimated IQ, although both IQ group means fall within the average range.

Within the CAE group, the mean age at seizure onset was approximately 7 years (range: 2–13 years). Duration of illness was approximately 3 years (range: 0–11 years), with 13% of the sample diagnosed less than 1 year prior to the assessment. Most subjects were on monotherapy (66%), and approximately 42% had been seizure free for at least 6 months. Seven subjects were not taking medication. No differences were found between subjects on monotherapy, polytherapy, and no medication therapy, and there were no individual medication effects within monotherapy subjects, although it should be noted that our sample size was not sufficiently large to directly examine medication effects as in recent multicenter studies [12]. The remaining subjects had seizure frequencies ranging from >1 to 20 per day.

Table 1
Demographic data for the study subjects.

	Group		Statistic	*P*
	CAE	Control		
Sociodemographic variables				
N	38 (46.3%)	44 (53.7%)		
Age	10.5 ± 2.3	11.8 ± 2.3	4.37	0.04[a]
WASI estimated Full-Scale IQ	100.8 ± 17.2	111.2 ± 16.4	5.02	0.03[a]
Gender			1.54	0.22
Male	13 (34.2%)	21 (47.7%)		
Female	25 (65.8%)	23 (52.3%)		
Socioeconomic status			4.59	0.10
Low	1 (2.6%)	1 (2.3%)		
Middle	18 (47.4%)	11 (25.0%)		
Middle-high	19 (50.0%)	32 (72.7%)		
Seizure variables				
Age at disease onset[b]	6.9 ± 2.8	—		
Duration of illness[b]	3.4 ± 2.7	—		
Current seizure status[c]				
Controlled	8 (42.1%)	—		
Active (range daily–monthly)	11 (57.9%)	—		
Antiepileptic medication				
None	5 (13.2%)	—		
Monotherapy	24 (63.2%)	—		
Duotherapy	8 (21.1%)	—		
Polytherapy (≥3)	1 (2.6%)	—		

Note. Values are means ± SD or *n* (%). For categorical data, the χ^2 test was used, and for continuous data, the *F* test.

[a] $P = 0.05$.

[b] $n = 37$.

[c] $n = 19$.

3.2. Hypothesis testing

ANOVA revealed significant differences between children with CAE and HCs on the ATT subscale, which remained after covarying for age and IQ (see Tables 2 and 3). The HYP subscale showed significant mean differences between the groups at the bivariate level, but lost significance after covarying. Children with CAE had higher means compared with HCs.

Item analysis for the ATT subscale revealed group differences on A1 that lost significance after controlling for age and IQ, and group differences on A5 that remained significant following covariate analysis. From the HYP subscale, there were group differences at the bivariate level on the following items: H1, H5, and H7. H1 remained significant after covarying. Means were higher in the CAE group.

Discriminant function classification statistics were used to determine sensitivity and specificity of ATT and HYP items in differentiating the CAE and HC groups. A1 and A5 were significant as a single function ($\chi^2[2,76] = 14.8$, $P = 0.001$). Their classification of children with CAE and HCs had a sensitivity of 58.3% and specificity of 76.2%. H1, H5, and H7 were also significant as a single function ($\chi^2[3,76] = 10.9$, $P = 0.01$]. Their group classification of children with CAE and HCs had a comparable sensitivity of 51.4% and specificity of 73.8%.

Within the CAE group, analyses were performed to determine attention and hyperactive symptoms that may be related to disease factors. ANOVA revealed no significant differences between the children whose seizures were well controlled and those actively having seizures on the ATT subscale ($F[1,15] = 0.37$, $P = 0.55$), HYP subscale ($F[1,15] = 2.36$, $P = 0.15$), age ($F[1,15] = 0.44$, $P = 0.52$), and IQ ($F[1,15] = 0.41$, $P = 0.53$). Similarly, there was no difference on the Mann–Whitney test between this disease factor and ATT items ($P > 0.05$); one HYP item, H4, yielded significant results ($U[1,19] = 20.50$, $P = 0.03$).

With the Pearson correlation, no significant relationships between duration of illness and age at disease onset with subscales ATT and HYP were found ($P > 0.05$). Spearman rank

Download English Version:

https://daneshyari.com/en/article/3050015

Download Persian Version:

https://daneshyari.com/article/3050015

Daneshyari.com