HHS Public Access

Author manuscript

Epilepsy Behav. Author manuscript; available in PMC 2018 April 01.

Published in final edited form as:

Epilepsy Behav. 2017 April ; 69: 95–99. doi:10.1016/j.yebeh.2017.01.024.

Parental Stress, Pediatric Quality of Life and Behavior at Baseline and One Year Follow-up: Results from the FEBSTAT Study

Ruth Shinnar, **Shlomo Shinnar**, **Dale C. Hesdorffer**, **Kathryn O'Hara**, **Terrie Conklin**, **Karen Cornett**, **Diana Miazga**, and **Shumei Sun**

Abstract

Febrile status epilepticus is a serious and frightening event in the life of the child and parent. It is regarded as a medical emergency with potential long lasting consequences. The purpose of this study was to look at the immediate and long term effects of such an event on parental stress and parents' perception of their child's physical and psychosocial wellbeing.

Methods—From 2003 to 2010, 199 subjects, age 1 month to 5 years, were recruited as part of a prospective, multicenter study (FEBSTAT) of consequences of febrile status epilepticus (FSE). At one month and one year after the episode of FSE, parents were asked to complete the Parenting Stress Index, short form (PSI/SF), the Pediatric Quality of Life Inventory (PedsQL) and the Child Behavior Checklist (CBCL). In addition to PedsQL and CBCL in the FEBSTAT subjects only, a comparison was made between Columbia Study of First Febrile Seizures subjects with a first simple febrile seizure (SFS) and the FEBSTAT group, including 15 subjects with FSE from the Columbia group, in the area of parental stress which was administered at the same time intervals in both studies.

Results—At baseline, the PSI/SF was statistically significantly higher for SFS versus FSE on the parent-child dysfunctional score and the total raw score, however at one year this difference resolved. In the FSE group, significantly higher parental stress over one year was reported in children with abnormal versus normal prior development (p= 0.02). Prior abnormal development was a risk factor at 1 year for lower total PEDSQL (p=0.01) versus prior normal development. Mean scores on the CBCL at baseline and 1 year were within the normal range for both empirically based scales and major risk factors.

Conclusions—Parents of children experiencing a SFS experienced more stress at baseline than those with FSE. Families of children in the FEBSTAT cohort with identified development problems at baseline that continued, or progressed over the one year period, reported decreasing QOL.

Keywords

Febrile status epilepticus; parental stress; pediatric quality of life; behavior

Corresponding Author Ruth Shinnar, **Corresponding Author's Institution**, Montefiore Medical Center.

Conflict of Interest

The authors declare no relevant conflicts of interest for this manuscript.

1. Introduction

Febrile status epilepticus (FSE) is a serious event in the life of the child and parent. There are few data that inform health care professionals of the lasting impact an initial episode of FSE has on them in terms of coping, stress, anxiety and behavior. We do know that parents are extremely frightened immediately following a seizure, whether febrile or afebrile, of long or short duration [1, 2]. Parents usually have many questions pertaining to etiology, treatment and prognosis; however a solitary episode may have little impact unless other factors come into play. While comorbidities are common in established epilepsy it is not known when many of them present; before or after the illness, or whether they exacerbate following it. The aim of this portion of the FEBSTAT research was to study the immediate and long term effects of such an event on parental stress and parents' perception of their child's physical and psychosocial wellbeing.

2. Methods

2.1 Participants

The consequences of prolonged febrile seizures study (FEBSTAT) enrolled 199 subjects age 1 month to 5 years of age who presented with FSE between May 2003 and March 2010 at 5 academic medical centers in the United States. The detailed methodologies of the study as well as the inclusion and exclusion criteria have been previously published [3, 4]. A febrile seizure was defined in accordance with the National Institutes of Health (NIH) and International League Against Epilepsy (ILAE) criteria. Status Epilepticus (SE) was defined as a seizure lasting > 30 minutes or a series of seizures without full recovery in between lasting > 30 minutes [5–8].

A comparison group was available from the Columbia Study of First Febrile Seizures which recruited 159 children ages 6 months to 5 years with a first febrile seizure [9]. This comparison group contained 15 cases of FSE, 102 children with a simple febrile seizure (SFS), as well as 49 with prolonged febrile seizures that did not meet criteria for either a simple seizure or status epilepticus.

2.2 Study Procedures

In the FEBSTAT cohort, the children were recruited within 72 hours of the event. Clinical data was collected and the child received a neurological evaluation, EEG, MRI, and blood work, including serum to assay HHV6/HHV7 centrally for viremia or reactivation. One month later the child was seen in the clinic office where parents completed the 3 rating scales for stress, quality of life and behavior; while the subject had baseline neuropsychological testing. These scales, as well as imaging, EEG, and neuropsychological testing were, or will be, repeated at 1, 5 and 10 years after the initial event. The 102 children comparison group with SFS and the 15 children with FSE from the Columbia study had a similar recruitment and were evaluated with the PSI-SF at the same 1 month and 1 year intervals.

2.3 Measures

The questionnaires that were completed by the parent at one month and at one year following the FSE were: the parenting stress index- short form (PSI/SF), the pediatric quality of life inventory (PedsQL) and the child behavior checklist (CBCL).

The PSI [10] is a questionnaire containing statements for which the parent ranks level of agreement. It measures stress directly associated with the parenting role of parents with children 1 month to 12 years. The short form has three sub-scales: parental distress; parent-child dysfunctional interaction, and difficult child. Parents who obtain a Total Stress score above a raw score of 85 are considered to be experiencing clinically significant parenting stress. The PSI was administered in both the FEBSTAT and Columbia cohorts.

The PedsQL generic core scale measures health-related quality of life in healthy children and adolescents. It contains four multidimensional scales including physical, emotional, social and school functioning, yielding summary scores in physical and psychosocial health as well as a total score [11]. Scoring is on a scale of 0 – 100 with the higher score indicating a better quality of life. Mean scores of 80 – 83 were obtained on over 10,000 parent proxy reports in initial health care testing [12]. The Peds PEDSQL is part of the NINDS common data elements [13].

The Child Behavior Checklist [14,15] preschool forms are designed to be self-administered by parents of children 1 ½ to 5 years who have at least a 5th grade reading skill. It contains 100 questions categorized into five problems areas or DSM-oriented scales: affective, anxiety, pervasive developmental, attention deficit/hyperactivity and oppositional; and seven syndrome scales: emotionally reactive, anxious/depressed, somatic complaints, withdrawn, sleep problems, attention problems, and aggressive behavior; as well as other problems. Normal range is a score of 64 and below. A score of 65 to 69 is considered in the borderline clinical range and 70 and over is in the clinically significant range. It is part of the common data elements for assessing behavior in studies of epilepsy recently established by NINDS.

2.4 Human Subjects

Both FEBSTAT and the Columbia First Febrile Seizure studies were approved by the Institutional Review Boards for Protection of Human Subjects at all institutions. Written informed consent was obtained from the parents in all cases. In FEBSTAT, when the children became older, written assent was also obtained but this was not applicable at baseline and one year given the median age of 15 months in FEBSTAT and 18 months in Columbia Cohort.

2.5 Statistical analysis

Frequencies, percentages, means, and standard deviations were used to summarize demographic characteristics, and seizure phenomenology. Comparisons between FSE and SFS for the PSI used t-tests. Predictors of PEDSQL and CBCL over time were assessed at baseline and one year using t-tests. Comparisons between FSE and SFS used ANOVA. Risk factors included baseline insurance status, development, and any MRI abnormality. T-tests were used to assess the relationship between each of these risk factors and abnormal EEG at

baseline for PEDSQL in FSE only. Statistical significance was set as $p<0.05$. All tests are two tailed. All analyses were conducted via SAS 9.4.

3. Results

3.1 Stress

PSI data was available on 119 subjects with FSE from FEBSTAT and FSE from the Columbia cohort at baseline and 97 at one year. Change was calculated from baseline to one year in 65 available children with both baseline and one year scores (Table1). Parental stress was within the normal range at both baseline and at one year. Compared to children with prior normal development, there was significantly increased stress from baseline to one year in children with abnormal prior development (0.1 (14.3) vs 12.4 (17.0), p= 0.02). There were no significant differences for the change from baseline to one year for total PSI score, age at FSE, gender, insurance status, focality, EEG and imaging abnormality, recurrent SE, and onset of epilepsy within 1 year. The highest stress scores, nearing a raw score of over 85, considered to be experiencing clinically significant parenting stress, were in the group that developed epilepsy within one year and in the group that had recurrent episodes of FSE.

Eighty three parents from the comparison group with SFS completed baseline PSI and 73 completed the 1 year follow-up. At baseline, the PSI was statistically significantly higher for SFS versus FSE on the parent-child dysfunctional score and the total score (Table 2). There was no statistical difference between the FSE cases and SFS comparison group at the one year follow-up.

3.2 Quality of Life

Quality of life scores (PEDSQL) were available only for the FEBSTAT cohort. Given the median age of 15 months in this cohort, more responses were available at one year (N=74) than at baseline (N=27). When compared to normal development, abnormal development was associated with a decrease in PEDSQL total score at one year (Table 3: 69.2 vs 87.1, $p< 0.01$). Epilepsy onset, EEG, focality, insurance status, MRI abnormalities, onset of epilepsy, gender and recurrent SE were not associated with the PEDSQL total score.

3.3 Child Behavior Checklist

The CBCL mean scores at baseline and one year were normal in the FEBSTAT group (Table 4). There were no significant associations between any of the risk factors and the CBCL at baseline or at one year.

3.4 Correlations between measures

Among FEBSTAT cases, the Pearson Correlation Coefficient between PEDSQL and the CBCL total problems score was −0.61 ($p<0.01$) and the correlation between PSI and the CBCL total problems score was 0.42 ($p<0.01$).

4. Discussion

When considering the severity of the event that the child with FSE and parent have experienced it is noteworthy that the only significant finding for stress was higher parental stress at baseline and one year follow up reported by parents of children with abnormal prior development compared to children with normal prior development. Abnormal development was also a major correlate of a decreased quality of life. In contrast, duration of seizure, imaging and EEG findings were not a major determinant. There are several possible explanations for these findings.

The chronicity of an illness maintains a level of stress over time which can impact quality of life. The identification of stress may develop over time and not is based on a one-time event but rather a constant demand on the parent. Differing child and parental characteristics seem to play a part in how the parent perceived stress [16]. Our group of children was young and meeting developmental milestones; and they did not meet the definition of having a chronic illness.

The PSI at one year was similar in the FEBSTAT and SFS Columbia group. While FSE is an acute life threatening event associated with a significantly increased long term risk of epilepsy, the short term outcomes are favorable. Although simple febrile seizures are generally regarded as benign by medical professionals, they are nevertheless very frightening events also. During the acute event parents may think their child is dying, however medical outcomes at one month and one year are not very different except that the FSE group has an increased risk of recurrent SE. Comorbidities in development dominate in predicting parental stress and PEDSQL in the FSE cohort. The fact that the small group of children who developed epilepsy in the first year following FSE also had a lower PEDSQL supports this concept.

Mean PEDSQL scores for the four multidimensional scales and the total scale score at baseline and 1 year fell within the normal range. These results are not surprising as our population was generally young and healthy and the questionnaire when originally tested in healthy children showed higher scores. Even at the one year follow up, when a group of these children had further febrile seizures as well as recurrent febrile status epilepticus; and a smaller proportion developed epilepsy, the PEDSQL scores remained normal. In more severe situations with longer ICU stays PEDSQL scores have been shown significantly worse quality of life [17]. In our study, the scores on the CBCL at baseline were all within the normal range which would be expected in a group of children with predominately normal development prior to measurement. At the one year testing, the behavior scores continued to be within the normal range. This finding is congruent with the supposition of Martinos et al [18] that premorbid conditions have the dominant effect on behavioral outcome. Their study reported combined results of development which included both parental and neuropsychological assessment. Roy et al [19] found similar results in their study of outcome after status epilepticus, although they detected a significant difference between the normal controls and the febrile status epilepticus groups' ages 3 to 21 months.

Unfavorable global outcome, lower health related PEDSQL and an increased risk of developing epilepsy were noted by Abend and associates [20] in children who had acute encephalopathy and status epilepticus but were neurodevelopmentally normal prior to their PICU admission. In contrast the FEBSTAT group had FSE but not an acute encephalopathy and recovered to baseline prior to the one month assessment of PSI, PEDSQL and behavior.

Findings on the CBCL over the longer term course of the study will yield needed information about comorbidities that arise in the subsequent long term, especially in the group that develops epilepsy.

4.1 Implications for Care Providers

Parents have many questions pertaining to etiology, treatment and prognosis. Subjects and families who participated in the FEBSTAT study received close follow up and direct contact with care providers. Family support at the time of the initial event and during the first year following, may be beneficial in curbing stress and promoting a good quality of life; and intermittent assessment will aid in identifying areas of concern in the child's development.

Conclusions

The aim of this portion of the FEBSTAT research was to study the immediate and long term effects of an initial event of status epilepticus on parental stress and parents' perception of their child's physical and social wellbeing. An initial episode of febrile status epilepticus, in FEBSTAT, did not have significant detrimental effects on parental stress, quality of life or behavior. One year following the event only those subjects with abnormal development at baseline had an increase in parental stress over time. The parents of children that developed epilepsy within one year and those that had recurrent episodes of FSE approached clinically significant stress level at one year. This emphasizes the importance of identifying comorbidities and plays a role in determining stress and QOL outcomes. Continued observation at five years after the initial episode of FSE may inform us of longer term difficulties and help with identifying potential targets for the design of interventions to prevent untoward consequences.

Acknowledgments

Funding

This work was supported by the National Institute of Neurological Disorders and Stroke grant NS43209 (PI: S. Shinnar, MD, PhD) and the National Institute of Child Health and Human Development grant HD36867 (PI: D.C. Hesdorffer, PhD).

FEBSTAT Study Team

Montefiore and Jacobi Medical Centers, Bronx, NY: Shlomo Shinnar MD PhD (PI), Jacqueline Bello MD, William Gomes MD PhD, James Hannigan RT, Sharyn Katz R-EEGT, FASET, David Masur PhD, Solomon L. Moshé MD, Ruth Shinnar RN MSN, Erica Weiss PhD.

Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL: Douglas Nordli MD (site PI), John Curran MD, Leon G Epstein MD, Andrew Kim MD, Diana Miazga, Julie Rinaldi PhD.

Columbia University, New York, NY: Dale Hesdorffer PhD (site PI), Stephen Chan MD, Binyi Liu MS, Yokasta Tineo BA.

Duke University Medical Center, Durham, NC: Darrell Lewis MD (site PI), Melanie Bonner PhD, Karen Cornett BS, MT, William Gallentine DO, James MacFall PhD, James Provenzale MD, Allen Song PhD, James Voyvodic PhD, Yuan Xu BS Eastern Virginia Medical School, Norfolk, VA: L. Matthew Frank MD (site PI), Joanne Andy RT, Terrie Conklin RN, Susan Grasso MD, Connie S. Powers R-EEG T, David Kushner MD, Susan Landers RT, Virginia Van de Water PhD.

International Epilepsy Consortium/ Department of Biostatistics, Virginia Commonwealth University, Richmond Virginia: Shumei Sun PhD (site PI), John M Pellock MD, Brian J Bush MSMIT, Lori L Davis BA, Xiaoyan Deng MS, Christiane Rogers, Cynthia Shier Sabo MS

Mount Sinai Medical Center, NY, NY: Emilia Bagiella PhD

Virginia Commonwealth University, Richmond, VA: John M Pellock MD (site PI), Tanya Brazemore R-EEGT, James Culbert PhD, Kathryn O'Hara RN, Syndi Seinfeld DO, Jean Snow RT-R

Additional Collaborators: Joan Conry MD, Children's National Medical Center, Safety Monitor; Tracy Glauser MD, Cincinnati Children's Medical Center, Genomics; Jeffrey L Noebels MD PhD, Baylor College of Medicine, Genetics

References

1. Baumer JH, David TJ, Valentine SJ, Roberts JE, Hughes BR. Many parents think their child is dying when having a first febrile convulsion. Dev Med Child Neurol. 1981; 23:462–464. [PubMed: 7274593]
2. O'Dell, C. What Do We Tell Parents of a Child with Simple or Complex Febrile Seizures?. In: Baram, TZ., Shinnar, S., editors. Febrile Seizures. San Diego, CA: Academic Press; 2002. p. 305-315.
3. Shinnar S, Hesdorffer DC, Nordli D, Pellock J, O'Dell C, Lewis D, et al. Phenomenology of prolonged febrile seizures Results of the FEBSTAT study. Neurology. 2008; 71:170–176. [PubMed: 18525033]
4. Hesdorffer DC, Shinnar S, Lewis DV, Moshé SL, Nordli DR Jr, Pellock JM, et al. Design and phenomenology of the FEBSTAT study. Epilepsia. 2012; 53:1471–1480. [PubMed: 22742587]
5. Dodson WE, DeLorenzo RJ, Pedley TA, Shinnar S, Treiman DB, Wannamaker BB. The treatment of convulsive status epilepticus: Recommendations of the Epilepsy Foundation of America's working group on status epilepticus. JAMA. 1993; 270:854–859. [PubMed: 8340986]
6. Thurman DJ, Beghi E, Begley CE, Berg AT, Buchhalter JR, Ding D, et al. ILAE Commission on Epidemiology. Standards for epidemiologic studies and surveillance of epilepsy. Epilepsia. 2011; 52(Suppl 7):2–26. [PubMed: 21899536]

7. Trinka E, Cock H, Hesdorffer DC, Rossetti AO, Scheffer IE, Shinnar S, et al. A definition and classification of status epilepticus – Report of the ILAE Task Force on Classification of Status Epilepticus. Epilepsia. 2015; 56:1515–1523. [PubMed: 26336950]
8. Commission on Epidemiology and Prognosis. International League Against Epilepsy Guidelines for epidemiologic studies on epilepsy. Epilepsia. 1993; 34:592–596. [PubMed: 8330566]
9. Hesdorffer DC, Benn EKT, Bagiella E, Nordli D, Pellock J, Hinton V, et al. Distribution of febrile seizure duration and associations with development. Ann Neurol. 2011; 70:93–100. [PubMed: 21437934]
10. Abidin, RR. Parenting Stress Index: Professional Manual. 3rd. Odessa, FL: Psychological Assessment Resources;
11. Varni JW, Limbers CA, Burwinkle TM. Impaired health-related quality of life in children and adolescents with chronic conditions: a comparative analysis of 10 disease clusters and disease categories/severities utilizing the PedsQL 4.0 generic core scales. Health Qual Life Outcomes. 2007; 5:1–9. [PubMed: 17201920]
12. Varni JW, Burwinkle TM, Seid M, Skarr D. The PedsQL 4.0 as a pediatric population health measure: feasibility, reliability and validity. Ambul Pediatr. 2003; 3:329. [PubMed: 14616041]
13. Loring DW, Lowenstein DH, Barbaro NM, Fureman BE, Odenkirchen J, Jacobs MP, et al. Common data elements in epilepsy research: development and implementation of the NINDS epilepsy CDE project. Epilepsia. 2011; 52:1186–1191. [PubMed: 21426327]
14. Achenbach, TM. Manual for the Child Behavior Checklist/4-18 and 1991 Profile. Burlington, VT: University of Vermont Department of Psychiatry; 1991.
15. Achenbach, TM., Rescorla, LA. Manual for the ASEBA Preschool Forms & Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth & Families; 2000.
16. Farrace D, Tommasi M, Casadio C, Verrotti A. Parenting stress evaluation and behavioral syndromes in a group of pediatric patients with epilepsy. Epilepsy and Behav. 2013; 29:222–227.
17. Ebrahim S, Singh S, Hutchison JS, Kulkarni AV, Sananes R, Bowman KW, et al. Adaptive behavior, functional outcomes, and quality of life outcomes of children requiring urgent ICU admissions. Pediatr Crit Care Med. 2013; 14:10–18. [PubMed: 23132399]
18. Martinos MM, Yoong M, Patil S, Chong WK, Mardari R, Chin RFM, et al. Early developmental outcomes in children following convulsive status epilepticus: A longitudinal study. Epilepsia. 2013; 54:1012–1019. [PubMed: 23566067]
19. Roy H, Lippe S, Lussier F, Sauerwein HC, Lortie A, Lacroix J, et al. Developmental outcome after a single episode of status epilepticus. Epilepsy and Behav. 2011; 21:430–436.
20. Abend NS, Wagenman KL, Blake TP, Schultheis MT, Radcliffe J, Berg RA, et al. Electrographic status epilepticus and neurobehavioral outcomes in critically ill children. Epilepsy and Behav. 2015; 49:238–244.

Highlights

- Parents of children with abnormal development had significantly higher stress over one year
- Prior abnormal development was a risk factor at 1 year for lower total PEDSQL
- CBCL at baseline and 1 year were normal range for all scales and major risk factors

Table 1

Risk factors for change in standardized PSI total score from one month to one year within FSE

Factor	Category	N	Mean change[1] (SD)	p-value
All	All	65	2.02(15.3)	-
EEG[2]	Abnormal EEG	27	−0.8 (16.3)	0.26
	Normal EEG	29	3.7 (13.3)	
Age of FSE	< 18 Months	36	1.7 (13.0)	0.84
	≥ 18 Months	29	2.5 (18.0)	
Focality	Focal	49	1.8 (15.9)	0.86
	Not Focal	16	2.6 (13.9)	
Gender	Female	36	0.0 (11.7)	0.26
	Male	29	4.5 (18.7)	
MRI[3]	Abnormal MRI	18	1.3 (12.2)	0.74
	Normal MRI	45	2.8 (16.6)	
Prior Development	Normal	55	0.1 (14.3)	0.02
	Abnormal	10	12.4 (17.0)	
Onset of Epilepsy within 1 year[4]	No Onset of Epilepsy	59	1.6 (14.1)	0.56
	Onset of Epilepsy	5	9.4 (27.6)	
Recurrence of SE within 1 Year[5]	No Recurrent SE	61	1.8 (15.6)	0.62
	Recurrent SE	4	5.8 (9.1)	

[1] This includes subjects with one month and one year scores;

[2] Missing 9 because there was no EEG in the Columbia study;

[3] Missing 2 without MRI;

[4] Missing 1 in follow up;

[5] This includes febrile and afebrile SE

Table 2

Parenting Stress Index Scores for Febrile Status Epilepticus (FSE) and Simple Febrile Seizures (SFS) at Baseline and One Year

Baseline							
	FSE*		SFS		T - test	Equality of Variance (F-test)	
Category	N	Mean (SD)	N	Mean (SD)	t-value (*P*)**	F-value (*P*)	Degree of Freedom
Raw Difficult Child	119	23.9 (7.8)	83	25.5 (7.6)	−1.42 (0.15)	1.06 (0.77)	118, 82
Raw Parent-Child Dysfunctional Interaction	119	18.7 (6.1)	83	20.9 (6.1)	−2.55 (0.01)	1.01 (0.94)	82,118
Raw Parental Distress	119	26.3 (6.1)	83	27.7 (6.9)	−1.58 (0.11)	1.25 (0.26)	82,118
Raw Total Score	119	68.8 (15.9)	83	74.1 (15.3)	−2.34 (0.02)	1.08 (0.71)	118, 82
One Year Follow Up							
	FSE		SFS		T -test	Equality of Variance	
Category	N	Mean (SD)	N	Mean (SD)	p-value	F-test (p-value)	F-test (Degree of Freedom)
Raw Difficult Child	97	26.6 (8.5)	73	26.2 (8.1)	0.35 (0.72)	1.08 (0.72)	96, 72
Raw Parent-Child Dysfunctional Interaction	97	20.1 (7.1)	73	20.3 (7.0)	−0.23 (0.82)	1.03 (0.90)	96, 72
Raw Parental Distress	97	27.0 (7.7)	73	25.4 (7.0)	1.35 (0.17)	1.23 (0.37)	96, 72
Raw Total Score	97	73.7 (19.3)	73	72.0 (18.4)	0.58 (0.56)	1.10 (0.67)	96, 72

*includes FSE subjects from FEBSTAT and Columbia Study of First Febrile Seizures

**If F-test was significant, Satterthwaite method is used, otherwise Pooled method is used in SAS analysis

Table 3

Risk factors for the PEDQOL at one year

				T -test [4]	Equality of Variance (F-test)	
Factor	**Category**	**N**	**Mean (SD)**	**t-value (*P*) /(95% CI)**	**F-value (*P*)**	**Degree of Freedom**
All	ALL	74	85.4(16.7)	(81.6 , 89.3)	-	-
EEG	Abnormal EEG	30	80.6 (19.8)	−1.95 (0.06)	2.17 (0.02)	29, 43
	Normal EEG	44	88.7 (13.4)			
Focality	Focal	54	84.6 (16.9)	−0.70 (0.49)	1.07 (0.90)	53, 19
	Not Focal	20	87.7 (16.3)			
Insurance [1]	Government Assistance	36	83.5 (18.9)	−1.34 (0.18)	2.36 (0.01)	35, 35
	Self-Insured	36	88.5 (12.3)			
MRI [2]	Abnormal MRI	18	82.2 (18.3)	−0.95 (0.34)	1.25 (0.52)	17, 54
	Normal MRI	55	86.5 (16.3)			
Prior Development	Abnormal	7	69.2 (15.6)	−2.83 (0.01)	1.05 (1.00)	66, 6
	Normal	67	87.1 (15.9)			
Recurrence of Epilepsy in 1 year	No Onset of Epilepsy	66	86.3 (16.1)	1.64 (0.11)	1.61 (0.32)	6, 65
	Onset of Epilepsy	7	75.5 (20.4)			
Recurrence of SE in 1 year	No Recurrent SE	70	86.0 (16.2)	1.22 (0.23)	2.22 (0.19)	3, 69
	Recurrent SE	4	75.6 (24.1)			
Gender	Female	31	84.6 (18.5)	−0.35 (0.73)	1.45 (0.27)	30, 42
	Male	43	86.0 (15.4)			

[1] Missing 2 in insurance status;

[2] Missing 1 in MRI;

[3] Missing 1 in follow up

[4] If F-test was significant, Satterthwaite method is used, otherwise Pooled method is used in SAS analysis

Table 4

CBCL Scores at Baseline and One Year in FEBSTAT

	Baseline		One Year		T -test	Equality of Variance (F-test)	
Category	**N**	**Mean (SD)**	**N**	**Mean (SD)**	**t-value (*P*)***	**F-value (*P*)**	**Degree of Freedom**
Raw Aggressive Behavior Score	64	53.6 (7.0)	95	53.4 (8.0)	0.22 (0.82)	1.32 (0.25)	94, 63
Raw Anxious / Depressed Score	64	53.1 (4.9)	95	52.6 (4.2)	0.71 (0.48)	1.38 (0.16)	63, 94
Raw Attention Problems Score	64	54.4 (6.4)	95	53.4 (5.8)	1.02 (0.31)	1.21 (0.39)	63, 94
Raw Externalization Score	64	48.6 (10.9)	95	46.7 (12.1)	1.01 (0.31)	1.24 (0.37)	94, 63
Raw Internalization Score	64	47.3 (11.3)	95	45.8 (10.1)	0.84 (0.40)	1.25 (0.33)	63, 94
Raw Sleep Problems Score	64	54.7 (5.6)	95	53.0 (5.8)	1.78 (0.07)	1.08 (0.75)	94, 63
Raw Somatic Complaints Score	64	53.8 (6.7)	95	52.6 (5.3)	1.17 (0.24)	1.61 (0.04)	63, 94
Raw Total Problems Score	64	48.7 (11.5)	95	46.0 (11.0)	1.49 (0.13)	1.09 (0.68)	63, 94
Raw Withdrawn Score	64	54.5 (7.4)	95	53.6 (6.3)	0.88 (0.37)	1.40 (0.14)	63, 94

* If F-test was significant, Satterthwaite method is used, otherwise Pooled method is used in SAS analysis