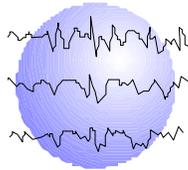


SUICIDAL IDEATION IN PEDIATRIC PATIENTS WITH EPILEPTIC SEIZURES, PSYCHOGENIC NONEPILEPTIC SEIZURES, OR BOTH

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REVISED ABSTRACT

RATIONALE: Pediatric epilepsy patients are at high risk for the development of depression. Few studies exist to explore occurrence of suicidal ideation (SI) for pediatric patients with epileptic seizures (ES). Furthermore, the limited data available on pediatric patients with psychogenic nonepileptic seizures (PNES) describes complex psychiatric presentations that would lend to an even higher risk for SI. The objective of the present investigation is to describe the occurrence of suicidal ideation (SI) in a selected sample of pediatric patients hospitalized for comprehensive seizure evaluation who were diagnosed with either epileptic seizures (ES), psychogenic nonepileptic seizures (PNES), or a mix of both ES and PNES (MIX).

METHODS: Records of 224 school-aged pediatric patients formerly diagnosed with ES, PNES, or MIX events who were admitted to an inpatient epilepsy unit from 09/99 through 04/05 for video-EEG monitoring to clarify seizure-like events were retrospectively reviewed. Patients were included if they were formally evaluated by a pediatric psychologist during the hospitalization and if ES, PNES or MIX was documented by a pediatric neurologist. Patients with physiological nonepileptic events were excluded from analysis. For this study, all epileptic seizure types were considered together and any report of past or current suicidal thoughts was considered as an endorsement of suicidal ideation (SI).

RESULTS: Of the 224 participants, 43% were male and 57% were female; 71% (N=159) of patients had ES, 19% (N=42) had only PNESs, and 10% (N=23) had MIX. Patients with ES were significantly younger (mean=11 yrs; $p<.005$) than patients with PNES (mean=13 yrs) and patients with MIX (mean=13 yrs). In this sample, 17% (N=39) of the patients reported a history of SI. This includes 26% of patients diagnosed with PNES (N=11), 39% of MIX patients (N=9), and 12% of ES (N=19). Chi-square analyses revealed that both PNES and MIX groups were significantly more likely to report SI than those with ES ($p<.021$ and $p<.001$, respectively). SI reports for patients with PNES only were not significantly different from those with MIX. Those with SI were older at the time of consult in comparison to those without SI. However, seizure group remained strongly associated with SI when age was controlled.

CONCLUSION: In this selected sample, pediatric patients diagnosed with PNES or MIX events were significantly more likely to report SI than those diagnosed solely with ES. Patients with MIX were no different from those with only PNES with respect to SI. This report is limited by patient selection factors. Nonetheless, the results clearly warrant further investigation into the mediating factors increasing the risk of SI for children with PNES.

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INTRODUCTION:

Pediatric epilepsy patients are known to be at high risk for the development of depression, with particularly increased incidence of suicide compared to those without epilepsy¹. Many individuals with suicidal attempts or completions have a history of expressed suicidal thoughts that occur prior to the attempt. Children with epilepsy may have particularly increased suicidal ideation²; however, existing research is quite limited. Additionally, data available on adult patients with psychogenic nonepileptic seizures describe complex psychiatric presentations that would further increase the risk for suicidal ideation, attempts, or completions³. Very little information is available regarding suicidal ideation for those pediatric patients with psychogenic nonepileptic seizures. The objective of the present investigation is to describe the occurrence of suicidal ideation (SI) in a selected sample of pediatric patients hospitalized for comprehensive seizure evaluation who were diagnosed with either epileptic seizures (ES), psychogenic nonepileptic seizures (PNES), or a mix of both ES and PNES (MIX).

METHODS:

The psychological records of 224 school-aged pediatric patients formally diagnosed with ES, PNES, or MIX events during admission to an inpatient epilepsy unit from 09/99 through 04/05 were retrospectively reviewed. Participants represent a selected group who had been admitted for continuous video-EEG monitoring to clarify seizure-like episodes, for surgical evaluation, or for medication adjustments. In addition, concurrent psychological consultation was initiated to address behavioral or emotional concerns. Patients were included only if they were of school age (6 years – 18 years) and had been diagnosed by a pediatric neurologist with ES, PNES or MIX events during the hospitalization in question. In addition, they had to have been evaluated by a pediatric psychologist during the same admission. For this project, PNES were defined as “typical seizure episodes” that occurred during the hospitalization without EEG epileptiform correlate. Patients with physiological nonepileptic events (e.g., cardiac arrhythmia) were excluded from analysis. For the purposes of this study, all epileptic seizure types were considered together as one category (ES). Data regarding suicidal ideation were obtained via non-standardized diagnostic interviews completed by one of two pediatric psychologists with the patient and his/her primary caretaker. Any parent, legal guardian, or self-report of past or current suicidal thoughts by the patient, whether with or without plan, intent, or action, were considered as an endorsement of suicidal ideation (SI).

RESULTS

Table 1 describes the sex and age distribution based on seizure type. Table 2 describes presence of SI in the context of sex and age of the patients.

Seventy-one percent (N=159) of patients were diagnosed with ES, 19% (N=42) with only PNESSs, and 10% (N=23) were a MIX (see Figure 1). Patients with ES were significantly younger than patients with PNES and patients with MIX at the time of the psychological consultation. Those with PNES were not significantly different in age from those with MIX (ANOVA, $F=5.43$, $p<.005$). The distribution of males versus females was significantly different with more females represented in the PNES and MIX groups than in the ES group ($X^2=5.97$, $p<.014$; $X^2=4.49$, $p<.034$, respectively). However, the distribution of males to females was not significantly different for PNES versus MIX groups ($X^2=.046$, $p>.831$).

Of all 224 participants, 17% (N=39) reported a history of SI. The patients with a history of SI includes 12% of those with ES (N=19 out of 159), 26% of the patients diagnosed with PNES (N=11 out of 42), and 39% of MIX patients (N=9 out of 23) (see Figure 2).

Both PNES and MIX groups were significantly more likely to report SI than those with ES ($X^2=5.306$, $p<.021$ and $X^2=11.404$, $p<.001$, respectively). However, the occurrence of SI in patients with PNES did not differ from those with MIX ($X^2=1.168$, $p>.280$).

Those with SI were significantly older at the time of the psychological consultation than those without SI ($F=5.154$, $p<.024$). However, a partial correlation controlling for age within seizure groups indicated a statistically significant association between seizure group and SI ($r^2=.217$, $p<.001$). Gender differences of SI reports for the entire group were not statistically significant ($X^2=.002$, $p>.968$).

Results should be considered preliminary until they can be replicated with randomized sample that is more representative of the larger epilepsy population.

CONCLUSIONS:

In this sample, occurrence of psychogenic nonepileptic seizures, whether alone or in combination with epileptic seizures, was associated with a higher rate of SI by patient and/or family report.

This finding is not accounted for by the older average age of PNES and MIX patients. Higher likelihood of female gender in PNES and MIX patients also did not account fully for differences in rates of SI.

These findings warrant additional investigation into potential mediating factors of risk for SI in pediatric epilepsy populations, particularly with children who have psychogenic nonepileptic seizures as a part of their clinical presentation. Formal evaluation of areas such as psychological diagnoses, cognitive abilities, academic functioning, psychosocial patterns, and familial history within the context of SI should be included in future projects.

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Table 1

Demographic Information

	ES	PNES	MIX
Total #	159 (71%)	42 (19%)	23 (10 %)
Sex: Males	79 (50%) ^a	12 (29%) ^b	6 (26%) ^c
Female	80 (50%) ^a	30 (71%) ^b	17 (74%) ^c
Age: Mean (SD)	11.55 yrs (3.5 yrs)	13.02 yrs (2.99 yrs)	13.39 yrs (2.9 yrs)
Range	6-18 yrs	6-18 yrs	7-17 yrs

SD=Standard Deviation a=Percent of ES group b=Percent of PNES group c=Percent of MIX group

Table 2

Suicidal Ideation

	SI	No SI
Total #	39 (17%)	185 (83%)
Sex: Males	17 (44%) ^a	80 (43%)
Female	22 (56%) ^a	105 (54%)
Age: Mean (SD)	13.13 yrs (3.1)	10.67 yrs (3.41)
Range	6-18 yrs	6-18 yrs

SD=Standard Deviation a=Percent of SI group b=Percent of no SI group

Figure 1

Seizure Types (N=224)

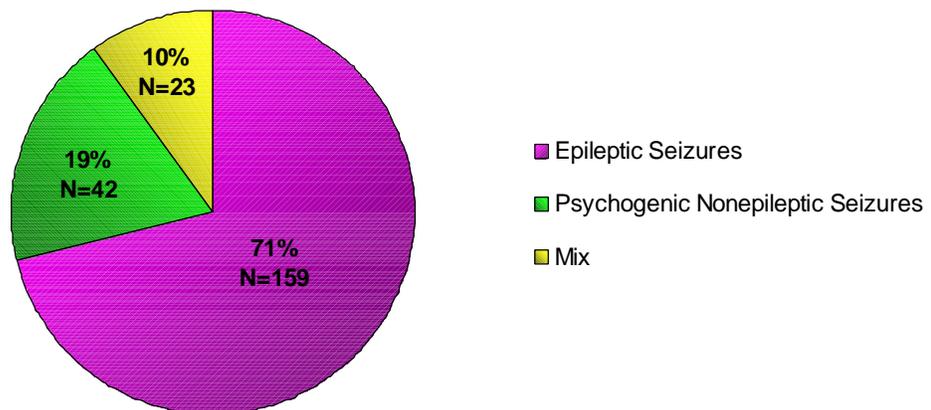


Figure 2

Percentage of Seizure Group Endorsing Suicidal Ideation

