## Original Article

# Nonepileptic attack disorder among married women

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**Aim**: To study the clinical features, precipitating stressful life events and prognosis of nonepileptic attack disorder (NEAD) among married women. **Design:** Prospective cohort study with 1-year follow-up. **Setting:** A tertiary care teaching hospital. **Subjects**: Of the 1020 patients with epilepsy referred to the epilepsy clinic during 2002–2003, 30 were married women with NEAD. **Materials and Methods**: The diagnostic criteria for NEAD included normal EEG during ictal and post-ictal phase of the generalized 'attack.' The data collected included clinical characteristics, semiology of the attacks, precipitating stressful events, and co-morbid psychiatric disorders. The control group included 30 age-matched married women with generalized tonic-clonic seizures. The long-term outcome and factors influencing the outcomes were analyzed. **Results**: The mean duration of illness was 18 months, and the pattern of the attack was 'fall and lying still' in 53% and 'fall with generalized motor movements' in 47%. The frequency was one or more per week in 57% and occasionally in 43%. The important stressful events were matrimonial discord following illegal relationship of the husband with another woman ($\chi^2$ = 9.02, $P$ = 0.003) and constant quarrel with other family members ($\chi^2$ = 5.19, $P$ = 0.02). The prevalence of sexual abuse was low (7%). Co-morbid psychiatric disorder was observed in 70%. At the end of 1 year, 39% were free from the attack. Resolution of the stressful life events ($\chi^2$ = 4.52, $P$ = 0.03) and lower frequency of attack at the time of reporting ($\chi^2$ = 3.88, $P$ = 0.05) correlated with good outcomes. **Conclusion**: Among patients with NEAD in India, the major precipitating factors were matrimonial discord following illegal relationship of the husband with another woman and constant quarrel with other family members and not sexual abuse. Women with low frequency of attack at the time of reporting and the remission of the stressful events had better outcomes.

**Key Words:** Nonepileptic attack disorder, stressful life events, video–EEG

Nonepileptic attack disorder (NEAD) is paroxysmal events which mimic epileptic seizures, initiated by psychological mechanisms and unaccompanied by epileptiform discharges during the ictal period.[1] Patients with NEAD constitute approximately 9–50% of those referred to special epilepsy clinics.[2] Diagnosis of the condition has been simplified by simultaneous video EEG monitoring during the attack.[3] The precipitating stressful life events and prognosis are different between the children and adults.[4],[5] Even though it is a common disorder, only scanty literature is available in India on this subject. In this paper, the clinical features, stressful life events, prognosis, and its influencing factors of NEAD among married women are described.

## Materials and methods

Nonepileptic attack disorder was suspected among the patients referred to the epilepsy clinic in the presence of one or more of the following clinical features: (a) several episodes of 'loss of consciousness and lying motionless' occurring daily; (b) 'seizure' provoked by emotional stress; (c) high frequency of 'seizures' not responding to adequate antiepileptic drug (AED) therapy; (d) convulsive episodes associated with side to side movement of the head, kicking, or cycling movement of the legs, forward and backward movement of the chest, abdomen, rolling on the floor and crying, or making noise throughout the attack; (e) duration of the episodes lasting for a longer period (arbitrarily more than 5 min).[6] All the patients were admitted to the ward to observe the attack. Sixteen-channel interictal EEG and CT scan of the brain were done in all the patients. When both the above investigations were normal, induction of the 'seizure' with continuous EEG monitoring was done. The nature of the test was explained to the patients as well as the relatives and an informed consent was obtained. The test procedure consisted of initiation and termination of the attack using suggestion and placing a tuning fork on the forehead (for initiation) and occiput (for termination). As video EEG facility was not available, simultaneous continuous EEG recording and video recording with a handicam were done during the procedure.[7] It was carried out in the presence of a close relative to confirm that the provoked 'attack' was similar to the habitual at-

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tack. NEAD was diagnosed if the simultaneously recorded EEG during the attack showed no corresponding epileptiform discharges.[1] After confirming the diagnosis of NEAD, a brief discussion was held with the patient as well as a close relative and the nature of the illness was explained to them. The various precipitating stressful events were identified.

Controls included 30 age-matched married women with generalized tonic-clonic seizures. The controls were selected randomly. Among the patients, the first married women patient who attended the epilepsy clinic for the first time and subsequently on every Tuesday of the month during the study period and who met the inclusion criteria was included. The various precipitating stressful events were also identified in the controls.

All patients with NEAD had a psychiatrist's opinion and appropriate pharmacotherapy was initiated. Patients and the relatives underwent detailed counseling and it was repeated whenever necessary. In those with marital conflict, both the wife and the husband underwent the procedure independently and together. The patients were periodically followed up in the outpatient clinic. None of the patient received AEDs.

### *Statistical analysis*

Demographic and baseline clinical characteristics were summarized as a mean and range for continuous variables and as a percentage of the group for categorical or dichotomous variables. Pearson chi-square test, Yates corrected chi-square test, and Fisher's exact tests were used to compare the study and control groups, attack-free, and attack-persistence groups. Relative risk (RR) with 95% confidence interval (95% CI) was calculated using Taylor series 95% confidence limits to compare the risk of influencing factors. The proportion of attack-free women with 95% CI was calculated using Fishers exact 95% interval method. The $P$ value $< 0.05$ was considered statistically significant.

## Results

During the 12-month study period (2002–2003), 1020 patients were referred to the epilepsy clinic. Diagnosis of NEAD was made in 75 (7.3%). Females were 68 (90.6%), 34 unmarried (including 19 students, 7 working, and 8 unemployed), and 34 married. Of the 34 women, 4 had both epileptic seizures and NEAD. Only 30, 40% of the total NEAD group was included for the analysis. Women with NEAD men were seven (9.3%) (including unmarried 3 and married 4).

**Table 1: Clinical features in patients with nonepileptic attack disorder**

| | *n* | % |
|---|---|---|
| Frequency of attack | | |
| Minimum one per day | 12 | 40.0 |
| Minimum one per week | 5 | 16.7 |
| Minimum one per month and occasionally | 13 | 43.3 |
| Pattern of the attack | | |
| 'Fall and lying still' alone | 16 | 53.3 |
| 'Fall with generalized motor movements' | 14 | 46.7 |

The mean age was 29.7 years (range 17–45 years) and the monthly family income was Indian National Rupees (INR) 1330 (range INR 500–3000). The educational status was (a) illiterate 13 (44%), primary school 7 (23%), and middle school and above 10 (33%). The duration of illness was 18 months (range 1–96 months). The salient clinical features are given in Table 1, the stress events in Table 2, causes of marital conflict in Table 3, and psychiatric co-morbidity in Table 4. The statistically significant stressful event observed in the study group was constant quarrel with other family members. The significant stressful event unique in the study group was matrimonial discord following husband's illegal relationship with another woman.

During the follow-up period of 1 year, 23 (77%) patients continued to attend the epilepsy clinic and 7 (23%) were lost for follow up. Of the 23 women who had follow up, 9 (39%) were free from the attacks, and 14 (61%) continued to experience the attacks. The various factors influencing the out-

**Table 2: Stress events in patients with nonepileptic attack disorder and the controls**

| Stress events | Study group (*n* = 30) *n* (%) | Control group (*n* = 30) *n* (%) | *P* value* |
|---|---|---|---|
| Financial crisis | 20 (66.7) | 18 (60.0) | > 0.05 |
| Marital conflict | 20 (66.7) | 17 (53.3) | > 0.05 |
| History of sexual abuse | 2 (6.7) | 1 (3.3) | > 0.05 |
| Misunderstandings with mother-in-law | 1 (3.3) | 5 (16.7) | > 0.05 |
| Constant quarrel with other family members (father-in-law, siblings, children, husband, relatives, etc.) | 7 (23.3) | 1 (3.3) | *P* = 0.02 |

* Tests of significance were chi-square test and Fisher's exact test

**Table 3: Causes for matrimonial conflict in study and control group**

| | Study group (*n* = 20) *n* (%) | Control group (*n* = 17) *n* (%) | *P* value * |
|---|---|---|---|
| Verbal abuse by the husband | 12 (60.0) | 11 (64.7) | > 0.05 |
| Physical abuse by the husband | 8 (40.0) | 12 (70.6) | > 0.05 |
| Excessive alcohol drinking by the husband | 9 (45.0) | 13 (76.5) | > 0.05 |
| Illegal relationship with another woman | 10 (35.0) | 1 (5.9) | *P* = 0.003 |
| Not going to Job | 2 (10.0) | – | > 0.05 |
| Separated from the husband | 2 (10.0) | 1 (5.9) | > 0.05 |

* Tests of significance were chi-square test and Fisher's exact test.

**Table 4: Co-morbid psychiatric illness in the study group**

| | *n* | % |
|---|---|---|
| Depression | 6 | 20 |
| Hysterical neurosis | 6 | 20 |
| Conversion disorder | 6 | 20 |
| Somatiform disorder | 2 | 7 |
| Dissociative state | 1 | 3 |
| Nil | 9 | 30 |

come are given in Table 5.

There was no relation between prognosis and duration of illness, co-morbid psychiatric illness, and family support. It was better in those who presented with low frequency of attack (less than one per week at the time of reporting) and remission of stressful events during the follow-up period. Fifteen (65%) of them developed multiple somatic complaints such as headache, pain in different parts of the body, tiredness, giddiness, and disturbed sleep during follow up.

## Discussion

Nonepileptic attack disorder, also called pseudoseizure, conversion seizure, hysterical seizure, nonepileptic seizure, and psychogenic seizure, is classified under conversion disorder with seizure or convulsion in DSM IV.[8] In the International Classification of the diseases (ICD – 10), it is grouped under dissociative disorder and labeled dissociative convulsion.[9] The gold standard for the diagnosis of NEAD is the absence of associated EEG abnormalities during the 'attack.'[1] However, this facility is not available in most of the centers in India and is also expensive. The other limiting factor is that patient may not get the 'attack' during the monitoring period. To overcome this limitation, certain induction techniques involving suggestion to initiate and terminate the attack using placebo injection, tuning fork, alcohol patch, and hypnosis are used during EEG recording.[7] Even though there are contradictory opinions about using the techniques, it is regularly practiced in several centers.[10],[11] In this study, due to nonavailability of video – EEG equipment, suggestion in the form of placing the tuning fork was used with continuous EEG recording and video monitoring with a handicam. In the present study, NEAD accounted for 7.3% of the patients referred to the epilepsy clinic. It is common among women, 75%,[3] and in the present series 90% of the patients were women. The reason for this may be the high prevalence of economic and social restraints among the women attending public hospitals. This probably may make them react differently to stressors in life. In most of them, the attack frequency was high and 43% had at least one or more per day. In the study by Meierkord *et al*.,[3] 'fall and lying still' was observed in 34%, whereas in the present series such presentation was observed in 53% of patients.[3] In school going children, this clinical presentation was observed in 55%.[4] Pelvic thrusting is a commonly observed phenomenon in the series from the developed nations,[3] whereas it was not a feature in the present series.

One of the reported major risk factors for NEAD is past history of sexual abuse.[12] However, in the present study history of sexual abuse was noted only in 7%. The reasons for this low prevalence may be many. Sociocultural practices in India, mainly in rural areas, usually do not allow an adolescent girl to be alone at home and when she goes out often an elderly female family member usually accompanies her. Besides, chastity is considered to be the highest virtue and sexual relationship is forbidden prior to marriage. This may reduce the chance of sexual abuse. However, the sociocultural values are fast changing in India. The other possible reason may be low reporting of sexual abuse by the patient because of the fear that it would bring disgrace to the individual and the family.

The major stressful events observed were matrimonial discords following the husband's illegal relationship with an-

**Table 5: Factors influencing the outcome in patients with nonepileptic attack disorder**

| Factors | Attack free (*n* = 9) | Attack persistent (*n* = 14) | *P* value * | Relative risk (95% confidence interval) |
|---|---|---|---|---|
| Duration | | | | |
| <6 months | 5 | 8 | > 0.05 | – |
| >6 months | 4 | 6 | | |
| Frequency of attack | | | | |
| <One per week | 7 | 2 | *P* = 0.05 | 3.21(0.9–12.3) |
| >One per week | 2 | 9 | | |
| Co-morbid psychiatric illness | | | | |
| Nil | 1 | 5 | > 0.05 | – |
| Present | 8 | 9 | | |
| Persistence of the stress during follow up | | | | |
| Absent | 6 | 2 | *P* = 0.03 | 3.75 (1.3–11.1) |
| Present | 3 | 12 | | |
| Family Support | | | | |
| Absent | 6 | 9 | > 0.05 | – |
| Present | 3 | 5 | | |

* Tests of significance were chi-square test and Yates corrected chi-square test

other woman and constant quarrel with other family members. Culturally exclusivity and possessiveness are the character traits of the Indian women (probably also with western women).[13] Indian woman would bear any other stressors, but would never accept her husband sharing the bed with another woman; even the suspicion of it could lead to a major family discord. The joint family system is still highly prevalent in India. Before marriage, women live with their parents and siblings. Immediately after marriage, they have to adjust to a newer environment consisting of the husband, in-laws, and other relatives and children. While most of them adjust well, few fail to do so, resulting in misunderstanding and constant quarrel. These sociocultural stressful events are unique to the Indian system and found to be the major provocation factors for NEAD in India among married women in this study.

The long-term prognosis of NEAD varies according to the patients as well as the various precipitating factors. Better outcomes have been reported in about 50% of the patients.[3],[5],[14] The reported factors indicating poor prognosis include young age, long duration of the illness, persistent disbelief in the diagnosis, serious personality disorder, major secondary gain, poor social environment, ongoing domestic violence, more dependency on others, and history of major psychiatric illness. The reported better prognostic factors include recent onset of illness, insight into the illness, motivation for recovery, and absence of disability.[3],[14] In the present study, 39% were free from the attacks at 1-year follow-up and the factors that positively correlated with good prognosis were remission of the stressful life events and low frequency of attack. In those with marital conflict, some of the partners were unwilling to come forward for counseling and the stress events could not be rectified well, resulting in continued occurrence of the 'attack.'

To conclude, 40% of the patients with NEAD were married women. The major stressful events were family discord as a result of illegal relationship of the husband with another woman and constant quarrel with other family members. The prognosis was good in 39%. Low frequency of attack at the time of reporting and remission of the stressful event led to better results.

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