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HOW PHYSICIANS MANAGE SEIZURE DISORDERS IN INFANTS AND CHILDREN: A PILOT STUDY

SEYYED MOHAMMAD RAFIEI, M.D.

From the Department of Pediatric Neurology, Shiraz University of Medical Sciences, Shiraz, Islamic Republic of Iran.

ABSTRACT

To see which medical specialties usually manage seizure disorders in infants and children, a random survey was done among 105 such patients referred. These patients were most frequently seen by a pediatrician (n= 44, 41.9%), general practitioner (n=34, 32.4%), and hospital house staff of general and pediatric emergency rooms (n= 2, 19%) in the area surveyed. A correct diagnosis of seizure disorder was achieved in 87.6% and 87.6% of the patients were managed correctly by various medical specialties. Several "seizure mimickers" were mistaken for seizure, i.e., breath holding spells, syncope and night terrors. It is concluded that various medical specialties are involved in the care of infants and children with seizure disorder, and further effort on the education of these specialties would avoid mis-management of such patients.

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Keywords: Seizure disorder (SD), Breath-holding spells (BHS), Syncope, Night terrors (NT)

INTRODUCTION

Seizure disorders (SD) in children are the most common neurological conditions for which infants and children are brought to various medical personnel for proper management.[1] A number of conditions may superficially mimic an SD and cause diagnostic and therapeutic difficulties for the practicing physician.[2,4] These include breath holding spells (BHS), both cyanotic and pallid,[2,4] syncopal attack,[8] and various movements disorders. A wrong impression of SD leads to performing unnecessary procedures, including costly EEG's, neur-imaging, and blood studies, and exposes the infant and child to hazards of anti-epileptic drugs.[7] Labelling a child "epileptic" has a deleterious psychological and social burden for the patient and family.

Infants and children are usually managed by various medical specialties depending on the disease process and/or availability of physicians (i.e., pediatrician vs. general practitioner or house staff of a hospital). An attempt was made to see which medical specialties see infants and children with SD and SD "mimickers", and the type of diagnostic and therapeutic approach made by these specialties.

PATIENTS AND METHODS

Between November 1995 to April 1996, from infants and children referred to the Pediatric Neurology Clinic with the impression of "SD" made by various referring physicians, 105 cases were randomly selected. Information was collected from the M.D.'s referral note, the parent(s), the patient, or other care-taker bringing the child to the clinic. A thorough history was obtained and general and neurological examination was performed in each patient, to reach a correct diagnosis and offer proper treatment in each case.

The International Classification for Epilepsy[3] and standard textbooks[10,11] were used for proper identification

Table I. Age distribution of the patients.

Age	No. of Patients
Up to 6 months	4
7 months-1year	7
13 months-2 years	33
25 months-4 years	16
4 years, 1 month-8 y	23
8 years, 1 month-12 y	17
>12 years	5
No. of males	60
No. of females	45
Total	105

Table II. Distribution of physicians who saw the patients.

Physician	No. (%)
General pediatrician	44 (41.9%)
General physician	34 (32.4%)
House staff	20 (19%)
Internist	2 (1.9%)
Psychiatrist	2 (1.9%)
Neurosurgeon	1 (0.95%)
Adult Neurologist	1 (0.95%)
Physiatrist	1 (0.95%)
Total	105

of various seizure disorders and their differential diagnosis in infants and children. Patients with all types of seizure disorders were included, both febrile and afebrile. Data analysis was made regarding the correctness of diagnosis, proper use of anticonvulsant drugs, and their indication in each patient.

RESULTS

Of 105 patients recruited, 60 (57.1%) were male and 45 (42.9%) female. Table I shows the age distribution of the patients, and Table II demonstrates patients' distribution with regard to physicians' specialty. Table III shows the type of management practiced by various specialties.

DISCUSSION

Most patients were referred either by pediatricians (n= 44, 41.9%), general physicians (n= 34, 32.4%), or hospital staff (n= 20, 19%). The hospital staff usually includes a pediatrician attending hospital rounds, one or two pediatric resident physicians, and interns, externs, and/or medical students. Decisions regarding the diagnosis and treatment of patients managed by this group are usually made by the attending or resident physician. The rest were seen by internists, adult neurologists, neurosurgeons, psychiatrists, and physiatrists (Table II). This implies that pediatric patients with SD are managed by various specialties who might be variably trained in the field of pediatric neurology, but exposed to such patients due to their practice in nervous

Table III. Physician distribution vs. diagnosis and managment.

M.D.	Correct Dx.	Correct Management	BHS	SA	NT
G. Ped.	37	40*	5	1	1
G. Phy.	32	32	1	1	-
H. Staff	19	19	-	1#	-
Adult Neu.	-	-	1	-	-
Neurosurgeon	1@	-@	1	-	-
Internist	1	1+	1	-	-
Physiatrist	1	1$	-	-	-
Psychiatrist	1	-	1	-	-
Total	92 (87.6%)	92 (87.6%)	9	3	1

*: In 4 cases of BHS drug therapy was correctly withheld.
#: In this case phenytoin was given.
@: A case of febrile seizure, correctly diagnosed, but carbamazepine given along with phenobarbital
+: SD suspected, but no drug given, and sent for further advice
$: SD correctly diagnosed, but wrong drug given
G. Ped: General Pediatrician G. Phy: General Practitioner
H. Staff: House Staff

and mental diseases. The reason of patient referral to the Pediatric Neurology Clinic was to seek "a second opinion", either by the referring physician or the parents. All patients with a true SD had either a febrile or an afebrile SD with one or several episodes at the time of referral. A relatively small number of diagnostic errors were made (n =13, 12.4%). Most errors were in mistaking non-epileptic paroxysmal events, most commonly breath-holding spells (BHS) (n= 9), syncopal attacks (n= 3), and night terrors (n= 1) for a true SD. Both BHS and SA, if sufficiently prologed, could result in tonic, or rarely, clonic movements and cyanosis, and hence be mistaken for a true SD.[6,8] Other deviations from proper SD management were: a) giving the wrong medication (carbamazepine instead of phenobarbital or diazepam for febrile seizure prophylaxis),[1] b) giving inappropriate medication (phenobarbital for BHS on several occasions or phenytoin for syncope in one patient), and c) prescribing very low doses of anticonvulsant drugs for SD. A diagnosis of seizure disorder, if not the first unprovoked episode or benign febrile seizure),[1] dictates prompt and proper antiepileptic drug therapy; conversely, drug(s) given on the basis of an erroneous impression will expose the infant to potential untoward drug effects[7] and emotional trauma for the family. Although certain drugs e.g., carbamazepine, could (and should) be started with low doses to avoid side effects, low doses are ineffective and may prolong SD and cause brain damage, especially in status epilepticus.[1]

Patients below 1 month of age were not included in the study due to more difficulties encountered in diagnosing SD in such an age group.[9] Difficulties in distinguishing a true SD from non-epileptic paroxysmal events have resulted in patient monitoring under a video-EEG monitoring system,[12] which was obviously not available to physicians under study and the author.

On the whole, most of the patients were managed correctly. Further refinement in the management of infants and children with SD requires offering educational opportunities for various medical specialties involved in the care of such patients, in order to eliminate the few instances in which other paroxysmal events are incorrectly managed as SD.

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