

REVIEW ARTICLE

DIAGNOSTIC AND PREDICTIVE VALUES OF PHOTO ALBUMS AND VIDEOCLIPS IN PEDIATRIC NEUROLOGY CLINICS

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Abstract:

Photo-albums and video-clips are simple means for diagnosis of diverse neurologic disorders in children. Most families either own or can borrow a still or video camera. Even when a purchase is required, it is more cost-effective than brain imaging as well as other sophisticated studies, and the family has something useful to show for expenditure. On the other hand many families have a photo-album which could be very informative for pediatric neurologists. These useful and simple means are invaluable in:

- Differentiation of progressive from static diseases of central nervous system in children.
- Helping in diagnosis of diverse types of seizures in pediatric epileptic patients.
- Differential diagnosis of epilepsy like disorders (e.g. sleep disorders) vs. epilepsy in children.
- Diagnosis as well as differential diagnosis of movement disorders in children.
- Therapeutic follow-up in many disorders (i.e. epilepsy, movement and sleep disorders) in children.

In my review article, I have indicated the importance of photo-albums and video-clips as invaluable means of diagnosis and prediction in child neurology by giving simple examples in this regard.

Introduction

We are living in a world of rapid development of science and technology, which to some extent has resulted in a false belief of adequacy of high tech facilities with regard to the prompt diagnosis in pediatric neurology disorders. Recent studies however emphasize the significant role of physical examination and observation in this regard. Reviewing the child's as well as the family's photo-albums and video-clips is an observational method which plays a prominent role in the following:

- Distinguishing progressive from static diseases of the central nervous system in children.
- Diagnosis of diverse types of seizures in pediatric epileptic patients.
- Differential diagnosis of epilepsy like disorders (e.g. sleep disorders), as compared to epilepsy, in children.
- Diagnosis as well as differential diagnosis of movement disorders in children.
- Therapeutic follow-up in many disorders (i.e. epilepsy, movement and sleep disorders) in children.

Static vs. progressive disorders

Reviewing family albums gives useful clues in the detection of neurodegenerative disorders in children. Parents of affected children who are anxious about and sensitive to their child's problem, usually bring along some earlier photos showing their kids engaged in activities which they no longer can perform, such as sitting or walking. Careful examination of these photos serves as an invaluable retrospective survey of the patient's developmental and neurological history and background (Fig 1, 2).



Figure 1: Family photos showing a well developed infant at the age of 10 month (right). Same patient at the age of 5 years who is bedridden due to a neurodegenerative disorder (above).



Figure 2: An apparently normal infant at the age of 7 months (right). Same child suffering from a neurodegenerative process at the age of 7.5 year (left).

Epilepsy vs. epilepsy like disorders

The Video-EEG monitoring technique has changed neurologists' attitudes towards epilepsy in children, particularly in infants. This modern facility can be used to differentiate between diverse types of seizures from each other and from non-epileptic phenomena (1, 4). In our country however the necessary facilities to avail of this technique are not yet available (5). It is recommended that parents buy or borrow a video camera to monitor abnormal movements in their children; will definitely be cheaper than several sophisticated exams such as brain MRIs, SPECTs, and other neurophysiologic studies. Of course, it goes without saying that the family can enjoy and benefit from the camera itself!(6-9) (Fig 3) .



Figure 3: A video-clip showing the infant involved in masturbatory movements. She was wrongly diagnosed to have epilepsy and was under several anticonvulsant drugs.

Determining the type of epilepsy

Video monitoring of seizure attacks by the family or the physician sometimes serves as a valuable tool to differentiate between the types of epilepsy. Various types of seizure in children may have the same symptomatology (e.g. staring is common in absence and complex partial epilepsy). The physician or parents can simply induce attacks by using the over-breathing maneuver and then monitor the attack by a video camera (Fig 4).



Figure 4: Staring induced by hyperventilation in a child with absence.

Differential diagnosis of sleep disorders in children

Sleep disorders are common in children with an incidence of 30%-40% documented by some studies; they are sometimes quite difficult to diagnose and differentiate from seizure disorders. Polysomnography, a modern technique used to study normal as well as abnormal sleep in children is unfortunately not within reach for all; again use of family video monitoring would be of much use in this regard. Carefully reviews of these clips by the physician at times could ensure accurate diagnosis and prompt treatment (2,3). Several patients of mine with sleep disorders were mistakenly diagnosed as epilepsy and treated with drugs; the use of simple video monitoring led successful discontinuation of drugs followed by a significant improvement in the patients' condition.

Differential diagnosis of movement disorders in children

Despite the latest developments documented in neurophysiologic studies, _inspection/ examination is nowadays the best way for the diagnosis of movement disorders in children. Long term video monitoring of the afflicted patients and reviewing of these videos by experts is a valuable method for the diagnosis and follow-up of such children; abnormal posturings such as dystonia could even be monitored by simple photos (Fig 5).



Fig 5: Severe dystonia and abnormal posture in a girl with basal ganglia disease.

Treatment follow-up

One of the best ways to follow up effectiveness of treatments used in seizures and movement disorders is video monitoring. Using modern neurophysiologic along with photocinematographic facilities will add to the precision and effectiveness of each of these means in the follow up of neurological disorders in children.

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