TUGAS ANALISA JURNAL NEUROBEHAVIOUR I

"TERAPI YOGA PADA PENDERITA EPILEPSI"

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KATA PENGANTAR

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Penulis

A. Latar Belakang

Sebagian besar masyarakat masih menganggap bahwa epilepsi yang lebih dikenal masyarakat dengan berbagai nama, diantaranya *ayan* dan *sawan,* disebabkan atau dipengaruhi oleh kekuatan supranatural, dan tiap jenis serangan dikaitkan dengan nama roh atau setan (Djeno dan Misnahati, 2004).

Epilepsi adalah suatu kelainan otak kronik dengan berbagai macam penyebab yang ditandai serangan epilepsi berulang yang disebabkan oleh bangkitan sel otak yang berlebihan, dimana gambaran klinisnya dapat berupa kejang, perubahan tingkah laku, perubahan kesadaran tergantung lokasi kelainan di otak (WHO). Sedangkan menurut Hughlings Jackson pada abad ke-19, epilepsi meurpakan istilah untuk cetusan listrik lokal pada substansi grisea otak yang terjadi sewaktu-waktu, mendadak dan sangat cepat.

Menurut Lumbantobing (1994) seseorang dikatakan menderita epilepsi apabila didapatkan ambang kejang yang rendah, mereka mudah sekali mengalami serangan epilepsi, kadang-kadang timbul secara spontan dan kadang-kadang oleh rangsang yang ringan saja seperti karena kesal, kurang tidur, dan marah. Selain itu seseorang dianggap sebagai penderita epilepsi bila ia telah lebih dari satu kali mengalami bangkitan atau serangan epilepsi secara spontan atau oleh gangguan yang ringan.

Setengah dari penderita epilepsi tidak diketahui penyebabnya, sementara yang lain dapat diketahui penyebabnya. Adapun penyebab dari epilepsi adalah pengaruh genetik, trauma kepala, gangguan medis, penyakit seperti meningitis,ensefalis, dan virus AIDS dapat menyebabkan epilepsi, cedera prenatal (janin sangat rentan terhadap kerusakan otak yang disebabkan oleh infeksi pada ibu, gizi buruk atau kekurangan oksigen), gangguan perkembangan (epilepsi dapat dikaitkan dengan gangguan perkembangan lain, seperti autise dan *sindrom down*).

Gejala kejang Jaksonian dimulai pada satu bagian tubuh tertentu (misalnya tangan atau kaki) dan kemudian menjalar ke anggota gerak, sejalan dengan penyebara aktivitas listrik di otak.

Menurut *Commision of Classification and terminology of the International League against Epilepsy* (ILAE) tahun 1981 (Harsono, 2001), klasifikasi epilepsi sebagai berikut :

a. Serangan epilepsi umum :
   Serangan epilepsi diawali dengan hilangnya kesadaran dan diikuti gejala lainnya yang bervariasi. Jenis-jenis serangan epilepsi umum dibedakan oleh ada atau tidak adanya aktivitas motorik yang khas diantaranya, yaitu :

serangan tonik-klonik umum (*grand mal*), *absence* (*petit mal*), *absence* tidak khas, serangan atonik, serangan mioklonik dan serangan tonik.

b. Serangan parsial
   Serangan parsial terdiri dari serangan parsial sederhana, serangan parsial kompleks dan serangan parsial yang berkembang menjadi serangan umum (serangan parsial sederhana).
c. Serangan tak tergolongkan

Hingga 1% dari populasi umum menderita epilepsi aktif, dengan 20-50 pasien baru yang terdiagnosis per 100.000 pertahunnya. Perkiraan angka kematian pertahun akibat epilepsi adalah 2 per 100.000. Kematian dapat berhubungan langsung dengan kejang, misalnya ketika terjadi serangkaian kejang yang tidak terkontrol, dan diantara pasien tidak sadar atau jika terjadi akibat cedera akibat kecelakaan atau trauma. Fenomena kematian mendadak yang terjadi pada penderita epilepsi (*sudden unexplained death in epilepsy,* SUDEP) diasumsikan berhubungan dengan aktivitas kejang dan kemungkinan besar karena disfungsi kardiorespirasi.

Laporan WHO pada tahun 2001 memperkirakan bahwa pada tahun 2000 diperkirakan penderita epilepsi di seluruh dunia berjumlah 50 juta orang dan 80% tinggal di negara berkembang. Angka prevalensi epilepsi pada umumnya berkisar antara 5-10 per 1000 orang penduduk (Pinzon dkk, 2005). Kejadian epilepsi pada laki-laki sebesar 5,88 dan perempuan sebesar 5,51 tiap 1000 penduduk. Prevalesi epilepsi di Indonesia berkisar antara 0,5-2% (Paryono dkk, 2003). Sekitar 1,1 juta hingga 1,3 juta penduduk Indonesia mengidap penyakit epilepsi (Depkes, 2006).

Kondisi fisik dan psikis dari penderita epilepsi membawa dampak negatif bagi perkembangan psikologisnya. Ada beberapa bentuk gangguan yang muncul dalam kondisi tersebut antara lain: rasa malu, rendah diri, hilangnya harga diri dan kepercayaan diri. Bentuk gangguan tersebut dapat menyebabkan penderita mengalami depresi yang berkepanjangan apabila tidak segera diatasi. Depresi yang dialami oleh penderita dapat mempengaruhi kemampuan untuk menerima diri sendiri. Penderita yang tidak dapat menerima diri sendiri akan merasa dirinya tidak berarti, tidak berguna, sehingga akan semakin merasa terasing dan terkucil dari lingkungannya (Monty dkk, 2003).

B. Penelitian Terkait

Berikut ini adalah beberapa hasil study penelitian mengenai terapi yoga pada penderita epilepsi

1. **Nandan Yardi "Yoga for control of epilepsy"**
   Metode acak, studi terkontrol yang berkaitan dengan yoga dan kontrol kejang, baik uji coba terkontrol secara acak , terutama menggunakan teknik yoga tunggal dalam populasi homogen seperti epilepsi mioklonik Juvenile dibenarkan untuk mengetahui bagaimana yoga mempengaruhi kontrol kejang dan kualitas hidup orang dengan epilepsi. Didapatkan hasil selama pelatihan relaksasi dengan yoga, terdapat penurunan yang signifikan dari kecemasan dan perilaku cemas serta penurunan kadar kortisol dibandingkan dengan kelompok kontrol. Namun, sampai saat ini metode tersebut sedang diuji untuk mengurangi kejang karena beberapa orang dengan epilepsi tidak mencapai kontrol kejang meskipun diberikan obat secara teratur.
2. **K.P.Sampath Kumar*, Debjit Bhowmik, Chiranjib, Shideshwar Shukhla, M.R.Chandira "Recent Advances In Epilepsy Drug Therapy And Management Disease"**

   Gambaran pada penelitian ini didapatkan bahwa tidak ada bukti yang dapat diandalkan untuk mendukung penggunaan terapi yoga sebagai terapi untuk epilepsi. Penelitian ini menyarankan diet khusus untuk membantu mencegah kejang . Yang paling populer adalah diet ketogenik (biasanya pada anak-anak) dan diet rendah karbohidrat , seperti diet Atkin yang dapat membantu dalam terapi epilepsi pada orang dewasa. Selain itu penelitian ini memberikan saran untuk orang dengan jenis epilepsi dapat mengambil manfaat dari operasi otak untuk menghapus sel-sel otak yang abnormal yang menyebabkan kejang, serta mendukung pemberian terapi obat pada penderita epilepsi untuk mengontrol kejang bagi kebanyakan orang.

C. Kesimpulan

Berdasarkan dari dua hasil penelitian yang sudah dilakukan menunjukkan bahwaa terdapat perbedaan dari hasil penelitian. Dimana Nandan Yardi dengan hasil penelitiannya "Yoga for control of epilepsy" menyetujui bahwa yoga dapat dijadikan sebagai terapi pada penderita epilepsi dengan menurunkan tingkat kecemasan pada penderita dimana kecemasan merupakan salah satu tanda dan gejala adanya epilepsi pada sesorang dan terdapat pada penderita epilepsi. Sedangkan dari hasil penelitian

K.P.Sampath Kumar*, Debjit Bhowmik, Chiranjib, Shideshwar Shukhla, M.R.Chandira dalam penelitiannya "Recent Advances In Epilepsy Drug Therapy And Management Disease" menyebutkan bahwa tidak ada bukti yang dapat diandalkan untuk mendukung penggunaan terapi yoga sebagai terapi untuk epilepsi

D. Pertimbangan Perawat (Nursing Consideration)

Pelayanan keperawatan merupakan pemberian asuhan keperawatan pada pasien dengan menggunakan pendekatan secara holistik atau menyeluruh. Ketika salah satu kebutuhan dasar pasien terganggu maka fungsi dari sistem-sitem yang lain juga akan terganggu. Tidak ada salahnya memberikan terapi yoga kepada penderita epilepsi atau kepada orang yang sehat, sebab dengan melakukan yoga dapat memberikan manfaat. Salah satunya menurunkan tingkat kecemasan atau strees sehingga meminimalisir timbulnya penyakit yang berawal dari stress atau cemas yang berlebihan

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Yoga for control of epilepsy

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Yoga is an age-old traditional Indian psycho–philosophical–cultural method of leading one's life, that alleviates stress, induces relaxation and provides multiple health benefits to the person following its system. It is a method of controlling the mind through the union of an individual's dormant energy with the universal energy. Commonly practiced yoga methods are 'Pranayama' (controlled deep breathing), 'Asanas' (physical postures) and 'Dhyana' (meditation) admixed in varying proportions with differing philosophic ideas. A review of yoga in relation to epilepsy encompasses not only seizure control but also many factors dealing with overall quality-of-life issues (QOL). This paper reviews articles related to yoga and epilepsy, seizures, EEG, autonomic changes, neuro-psychology, limbic system, arousal, sleep, brain plasticity, motor performance, brain imaging studies, and rehabilitation.

There is a dearth of randomized, blinded, controlled studies related to yoga and seizure control. A multi-centre, cross-cultural, preferably blinded (difficult for yoga), well-randomized controlled trial, especially using a single yogic technique in a homogeneous population such as Juvenile myoclonic epilepsy is justified to find out how yoga affects seizure control and QOL of the person with epilepsy.

Key words: yoga; relaxation; seizures; quality of life (QOL); randomized controlled trials (RCTs).

INTRODUCTION TO YOGA

Yoga is an age-old traditional Indian psycho– philosophical–cultural method of leading one's life that alleviates stress, induces relaxation and provides multiple health benefits to the person following its system. It is a method of controlling the mind ('yug') through union of the individual dormant energy ('prana' or 'kundalini') with the universal energy the 'Brahman'. In physiological terms, any kind of afferent or efferent neuronal discharge associated with consciousness represents a union, which has an effect on the body or mind. This experience can be modulated depending on one's level of conscious awareness, e.g. when a painful stimulus is received (external energy), the perception of pain (individual energy, dependent on neuronal chemistry and the resultant electrical phenomena

in neurons) may vary, depending on one's pain threshold, state of neuronal gating and conscious awareness. Our conscious awareness may vary at different times in identical environments and with identical stimuli giving us varying degrees of experience.

This is so because innumerable numbers of unions ('yogas') are taking place in our body at a given time, so that the most prominent among them is responsible for the experience at that particular time. Conscious realization and modulation of these unions ('yogas') is called self-realization. Various psychological or physical irritants ('kleshas') in the form of inputs from outside or inside the body are responsible for upsetting the balanced state of being, causing disease or suffering. A systematic attempt to reduce their intensity may be made through yoga, so that the harmful effects of the body's response (hormones, endorphins, histamines etc.) to these irritants may be reduced. Various randomized controlled trials (RCTs) have shown beneficial effect of yoga for control of asthma, hypertension, stress and anxiety.

The commonly practiced yogic methods are 'Pranayama' (controlled deep breathing), 'Asanas' (physical postures) and 'Dhyana' (meditation) admixed in varying proportions with differing philosophic ideas. These give the many schools of yoga practice such as Hatha Yoga, Karma yoga, Bhakti yoga and Raja Yoga. In yoga, especially in Sahaj yoga, the dormant energy in our body located at certain points of concentration ('chakras') of various body segments is awakened and felt during the yogic act, which has positive effects on physical, mental, emotional and psychological state of the body. Different schools of yoga work towards the final common aim of self-realization and control of mental, physiological, and psychological parameters through yogic experiences related to integrated inputs from the environment. Bhavan Yoga involves modulation of thinking, feeling and reasoning for self-realization.

Patanjala Yoga involves behavioural commitments in life, to reinforce the psyche at emotional (niyama) and intellectual (yama) levels.

Kundalini Yoga deals with control of hidden life energy ('kundalini'), in relation to external stimuli, so as to finally achieve awareness of a particular pattern of its working and to be able to control conscious experience of external inputs.

YOGA AND PHYSIOLOGY

The subject of yoga is difficult to evaluate for physiologists because the evaluation of subjective states of awareness such as self, self-realization, selfawareness, consciousness and self–non-self discrimination do not lend themselves to measurement by physiological techniques that mainly are measures of objective variables.

The interest of the western medical profession in yoga and its therapeutic effects dates back to 1910, when Schultz1 in Germany investigated Raja yoga and proposed the system of relaxation and meditation called 'Autogenic training', a psychotherapeutic tool for self-help. In the USA during the 1920s, Jacobson2 studied the physiological effects of relaxation and proposed the term 'Progressive relaxation'. The French physician Brosse, carried out electrocardiographic studies on Yogis in India who claimed to control or stop their heart beats. Das and Gastaut3 carried out EEG studies on meditation in 1953–54. Benson4 introduced the term 'relaxation response' for relaxation documented after transcendental

meditation. There has since then been a surge in medical studies related to effects of yoga and meditation on health.

Various controlled studies5–7 have shown objective alterations due to yoga in:

- the musculoskeletal system : changes in muscular activity, reflex activity, flexibility and pressure changes in body cavities,
- the respiratory system : changes in diaphragmatic breathing, nostril dominance, force of breathing, breath holding time, tidal volume minute ventilation and vital capacity,
- metabolic rates : basal metabolic rate and oxygen consumption,
- the cardiovascular system : regional blood flows, heart rate, blood pressure, sinus bradycardia, nodal rhythms and increased physical work capacity for heart rate,
- enzyme and hormone levels—biochemical changes, e.g. regarding catecholamines, histamine, 17 hydroxy steriods, vanilylmandelic acid, and plasma acetylcholine.

YOGA AND NEUROPHYSIOLOGY

The states of consciousness have traditionally been divided as wake state, sleep state and dream state. Meditation has been considered as the fourth state of consciousness. Etevenon7 in Paris studied the effects of yoga on sleep, meditation, and degree of consciousness. He also studied the phylogenetic evolution of sleep wake cycles, focusing on phylogenetic and ontogenetic appearances of REM cycles (activated sleep). A correlation was seen on EEG studies during states of concentration, found to be specific brain activity different from deep sleep. The relaxation response is associated with a predominant alpha spectral band in the EEG, high galvanic skin resistance (GSR), reduced muscular tension, reduced pulse rate and rate of breathing.

Stancak *et al.* studied 11 people (without a control group) and showed an initial increase in alpha, and then theta spectral bands in the occipital region with a relative increase in slower frequencies in the EEGs when they were practicing high-frequency yogic breathing called Kapalabhati. Orme-Johnson *et al.* observed increased alpha in all cortical areas while yogic flying in 23 subjects, compared with random jumps using the same subjects as an intra-group control.

Satyanarayana *et al.* demonstrated increased alpha activity in prefrontal and occipital areas of the brain in eight subjects performing Shantikriya yoga (a combined breathing and relaxation technique): however no randomization or controls were used.

Corby *et al.* studied autonomic and EEG correlates of Tantric yoga meditation in three groups of subjects as they progressed from normal consciousness to meditation. Groups differed in their level of meditation proficiency. Unlike most previously reported meditation studies, the subjects proficient in meditation demonstrated increased autonomic activation and increased alpha and theta power, minimal evidence of EEG defined sleep and decreased autonomic orientation to external stimulation. Subjects inexperienced in

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Meditation showed autonomic relaxation. This state of sudden autonomic activation was characterized by the meditating subject as an approach to the yogic ecstatic state.

Banquet13 showed better synchronicity between right and left hemisphere during yoga meditation on EEG spectral analysis of middle-aged individuals.

Roldan and Dostalek14 studied Agnisara which is a Hatha yoga exercise consisting essentially of alternate, forceful retractions and protrusions of the abdominal wall performed along with a 20–30 second period of apnea. In the course of this practice they demonstrated spindle bursts of 'wicket' EEG wave pattern developed over para-Rolandic areas of the cerebral cortex, at frequencies around 12–13 Hz, with waxing and waning amplitudes in the range of 50–100 _V. This 'Xi' rhythm could be considered as the expression of the central excitation, produced by the long-lasting and repeated stimulation of visceral and somatic receptors by the exercise, affecting the cortical areas with somato-visceral representation. They further studied other Hatha yoga15 exercises such as Nauli, Bhastrika and Suryabhedana and demonstrated three characterstic EEG patterns: A wicket rhythm, 12–17 Hz, in para-Rolandic areas (Xi rhythm), a 26–33 Hz sinusoidal activity confined to the mid-saggital parietooccipital region and paroxysmal activity localized to the lateral boundaries of parieto-temporo-occipital regions bilaterally. The expectation that the Hatha yogic exercises would affect the electrical activity of circumscribed, relatively well-defined areas of the brain was based on the fact that these exercises imply a strong stimulation of somatic and splanchnic receptors, the afferents of which are fed into specific cortical representation areas localized for the most part around central and anterior parietal areas.

YOGA AND AUTONOMIC SYSTEM CHANGES

There are a large number of studies on subjects performing yoga that demonstrate some alteration in autonomic function. These changes suggest both autonomic activation and inhibition (relaxation) of different subsets of the autonomic nervous system, with inter-individual differences in people practicing the same yoga meditation. Measurements of galvanic skin resistance, heart rate, blood pressure and respiratory rates have shown a great reduction of GSR during anxiety or stress and more than 200 times increase after yoga meditation. A reduced sympathetic response after yoga meditation has been consistently demonstrated, while the parasympathetic response may be unaltered or increased. Corby *et al.* demonstrated that there was a gradual autonomic activation in experienced yogis while inexperienced ones had autonomic relaxation. The sudden autonomic activation observed as the subjects neared the yogic ecstatic state had challenged the relaxation theory of meditation, and shows that autonomic function is subject to modulation depending on the training that the person has received.

YOGA AND THE LIMBIC SYSTEM

Woolfolk reviewed scientific research that has investigated the physiological changes associated with meditation as adherents of Indian yoga, transcendental meditation and Zen Buddhism (that have not shown a thoroughly consistent, easily replicable pattern of response) practice it. The majority of studies show meditation to be a wakeful state accompanied by a lowering of cortical and autonomic arousal. Additional research into the mechanisms underlying the phenomena of meditation will require a shifting from old to new

methodological perspectives that allow for additional experimental control and testing of theories.

YOGA, BRAIN PLASTICITY AND NEUROPSYCHOLOGY

Various tests for plasticity such as visual and auditory reaction times, perceptual motor speed, tests for non-verbal intelligence, errors for static motor performance and balance board tests showed significantly improved results after yoga in controlled studies. Jella *et al.* showed a significant increase in spatial task performance with left uni-nostril breathing and improvement in verbal tasks with right uni-nostril breathing in 51 right-handed undergraduate psychology students. Blumenthal *et al.* showed that on random allocation to aerobic exercises, yoga and waiting-list control groups, elderly men and women showed significantly improved aerobic capacity and reduction in emotional impairment with yoga, with relatively few improvements in cognitive performance associated with aerobic exercise. The mood benefits of Hatha yoga and swimming, two activities that differ greatly in aerobic training benefits were examined and 87 college students were assigned to yoga, swimming or control groups randomly. Consistent mood benefits of significantly greater reduction of scores on anger, confusion, tension and depression were observed in the yoga group as compared with the control or swimming groups.

YOGA AND PSYCHIATRY

That Yoga has beneficial effects on psychiatric symptoms was shown by a within-subjects-pre–post-test design study of 40 hospitalized children with adjustment disorder and depression. During relaxation training by yoga, a significant reduction of anxiety and anxious behaviour was seen as well as reduction in cortisol levels as compared with the control group, which was shown the relaxation videotape. Shannahoff-Khalsa and Beckett investigated the efficacy of Yogic techniques in the treatment of eight adults with obsessive–compulsive disorder (OCD). After one year of yoga therapy, a significant improvement in the Yale-Brown Obsessive–Compulsive scale comparing baseline with three, six, nine and 12 months results was seen for repeated measures, anxiety, global severity indices and perceived stress scale scores.

Nespor has given a good account of his experience with the application of yoga in the prevention and treatment of alcohol- and drug-related problems, in psychosomatic medicine, sexology, neuroses, old age psychiatry and prevention of stress with respect to specific indications and contraindications of different yoga exercises.

YOGA AND BRAIN IMAGING

There are few studies that have investigated the effects of yoga on brain imaging. Using positron emission tomography (PET), measurements of regional cerebral metabolic rate of glucose (rCMRGlc) are able to delineate cerebral metabolic responses to external or mental stimulation. In order to examine possible changes of brain metabolism due to Yoga meditation, PET scans were performed in eight members of a Yoga meditation group during a normal control state and yoga meditative state. The rCMRGlc values were slightly increased

in frontal and grossly reduced in occipital (primary and secondary visual) areas. Intra-individual variations were significant but an intra-group comparison was not significant29.

Lou *et al.* designed a study to examine if the neural structures subserving meditation can be reproducibly measured, and if so, whether they are different from those supporting the resting state of normal consciousness. Cerebral blood flow distribution was investigated using PET in nine adults, who were highly experienced yoga teachers, during the relaxation meditation (Yoga Nidra or yogic sleep) and during the resting state of normal consciousness. Spectral EEG analysis was conducted throughout the investigations. In the resting state of normal consciousness, differential activity was found in dorso-lateral and orbital frontal cortex, anterior cingulate gyri, left temporal gyri, left inferior parietal lobule, striatal and thalamic regions, pons, cerebellar vermis and hemispheres, structures thought to support an executive attentional network.

In meditation, differential activity was seen in the posterior sensory and associative cortices known to participate in imagery tasks. It was concluded that characteristic patterns of neural activity support the resting and meditative state.

YOGA AND SEIZURE CONTROL

Current anticonvulsant medication does not completely improve the seizure control in one-fifth of people with epilepsy.

Many non-pharmacological intervention procedures have been investigated for possible therapeutic benefit, in drug-resistant epilepsy with varying degrees of success. Many alternative procedures such as biofeedback, relaxation, and various psychological approaches have been tried for this purpose with anxiety alleviating or relaxation inducing factors as the common denominator. Meditation has been shown to produce relaxation and in light of the effectiveness of relaxation in psychosomatic disorders, various workers have tried meditation as an interventionial strategy for drug-resistant epilepsies. Of the few studies on yoga for seizure control two randomized controlled studies were found. The effect of Sahaj yoga meditation on seizure control and EEG alteration was assessed in 32 patients with idiopathic epilepsy35. Subjects were randomly divided into three groups. Group I (n =10) practiced Sahaj yoga for 6 months, Group II (n =10) practiced exercises mimicking Sahaj yoga for 6 months and Group III (n =12) served as the control group. Group I subjects reported a 62% decrease in seizure frequency at 3 months and a further decrease of 86% at 6 months of intervention. Power spectral analysis of their EEG showed a shift in frequency from 0–8 Hz towards 8–20 Hz. The ratio of EEG powers in delta (D), theta (T), alpha (A) and beta (B) bands i.e. A= D, A=DCT, A= T and ACB=DCT were increased. Percentage D power decreased and percentage A power increased. No significant changes in any of the parameters were found in Groups II and III, indicating that Sahaj yoga practice brings about seizure reduction and EEG changes. The possible mechanism underlying the beneficial effect of Sahaj yoga is not clear.

Meditation may modulate limbic system activity, which via the hypothalamus may modulate sympathetic nervous system activity and regulate endocrine secretions. Conditioning of these regions by practice of meditation may help in maintaining the normal

homeostatic conditions. The fundamental effect of stress reduction may be an important factor contributing to seizure reduction and EEG changes.

In the study by Deepak *et al.* 11 adults suffering from drug-resistant epilepsy were given med itation practice while another nine adults acted as waiting-list controls. All patients were on antiepileptic drugs and their serum levels were monitored regularly. Patients in the intervention group were given training in meditation, and they practiced it for 20 minutes a day for one year. They showed a significant reduction in seizure frequency and duration, an increase in the background EEG frequency, a reduction in mean spectral intensity of the 0.7–7.7 Hz segment, and an increase in mean spectral intensity in the 8–12 Hz segment of the EEG. All changes were statistically significant. Control patients did not show significant changes in seizure frequency or duration during the period of observation of one year. The results indicate that continued meditation practice is of substantial help in improving the clinico-electrographic picture in drug-resistant epilepsies.

CONCLUSIONS

Behavioural methods are currently being tested for seizure reduction since some people with epilepsy do not achieve seizure control despite regular and adequate medication. However, such studies are lacking and the results are conflicting. Often the number of subjects studied are small, the studies anecdotal, not randomized or controlled making their conclusions difficult to accept in the light of scientific practice. Some are single subject studies designed for individual patients which makes the application and interpretation of results to the general population unreliable. There are few studies related to yoga and seizure control and the two randomized, controlled studies discussed have methodological problems (randomization, heterogeneous seizure types) that do not allow the results to be accepted completely. Studies on yoga cannot be blinded (single or double) for obvious reasons and actually need to be double-sighted, so as to ensure the correctness of the yoga by the yoga teacher and for correct relation of the yoga experience by the subject to the evaluators.

A multi-centre, cross-cultural, ‘double-sighted’, well-randomized controlled trial, especially using a population of a homogeneous epilepsy syndrome such as juvenile myoclonic epilepsy, is justified to find out the beneficial effect of a single yoga method protocol on seizure control and quality-of-life issues.

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RECENT ADVANCES IN EPILEPSY DRUG THERAPY AND MANAGEMENT DISEASE

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ABSTRACT

Epilepsy is a very big problem which leads to draining on the physical, mental, as well as emotional levels. Apart from this, the treatment of this disease is very expensive, which leads to wasting of a lot of money on the expensive medicines. Epilepsy is a serious disease of Central Nervous System and refers to a chronic condition where repeated fits or attacks of unconsciousness occur with violent shivers. Attacks reduce with age. The uncertainty in the time of attack is one major problem. About 0.5% of the population has epilepsy. Approximately 1.5-5.0% of the population may have a seizure in their lifetime. Epilepsy can affect people of any age. Depending on the seizure type, different treatments may be prescribed. This will often include anticonvulsant medication that prevents or stops seizures. Anticonvulsant medications may need frequent adjustments, especially after starting medications. Monitoring of anticonvulsant medications and other laboratory tests may be necessary. Aromatherapy, acupuncture and reflexology may help to reduce stress and anxiety, which can trigger epilepsy in some people. Ask the therapist if the treatment you are considering is suitable for people with epilepsy. If you are taking any epilepsy medicines, check with your GP and pharmacist before taking or using any herbal remedy. You may be offered neurosurgery if your epilepsy is severe and is not controlled after trying several different epilepsy medicines. There is no cure for epilepsy, but epilepsy medicines can control seizures in around seven out of 10 people. When medicines are not working well, surgery or implanted devices such as vagus nerve stimulators may help. Special diets can help some children with epilepsy.

Key words: Epilepsy Drug Therapy.

INTRODUCTION

Epilepsy is a brain disorder that causes people to have recurring seizures. The seizures happen when clusters of nerve cells, or neurons, in the brain send out the wrong signals. People may have strange sensations and emotions or behave strangely. They may have violent muscle spasms or lose consciousness. Drugs may work well for many people with epilepsy, which allows them to lead full and normal life. There is no cure for epilepsy, but medicines can control seizures for most people. Other drugs less easy to find, either because of side effects, or simply because it does not work. Although many drugs have a time to be effective, the truth is that up to 20-30 percent of people with epilepsy do not respond well to drug therapy. If the drugs are proving ineffective, your doctor may try a higher dose, or

another drug or a combination of both drugs. Very rare anti-epileptic drugs can result in more frequent Seizures. If this happens your doctor may check the diagnosis. Doctors usually start patients with epilepsy off the lowest anti-epileptic dose and then build it to reduce the side effects. How much you need depends on various factors such as your build and body, to influence how your body processes the medicine and how easy you are to treat epilepsy. Too high a dose can result in intoxication. Symptoms of intoxication vary from medication to medication. If a person receives too many phenytoin, they often become very unsteady and may have more frequent Seizures. Carbamazepine toxicity usually begins with double vision and drowsiness. Another reason why the drug can sometimes seem Seizures will increase if a suitable drug for a type of seizure aggravates other types of seizure. Carbamazepine, for example, are effective against tonic-clonic Seizures, but not against absence Seizures. There was also some confusion about brand vs. generic. Almost all drugs have two names. The first is a generic name, the scientific name given to a drug that is recognized internationally. Branded medicines are those with a name created by an individual who has a pharmaceutical company manufactured them. The real drug is the same, but problems can arise if you move from one to another - for example, if you switch from Tegretol (brand) to carbamazepine (generic). This is because sometimes there are small differences in how the drug was manufactured. It is best that you stick to the type of epilepsy tablets that were initially planned, regardless of brand or generic. Sometimes change can trigger seizures or side effects. Conversely occasionally someone in seizure control may improve or reduce the side effects. Substitution drug treatment Before treatment was changed several questions must be considered: 1 Is this epilepsy? The rate of misdiagnosis is estimated to be between 10 and 25 per cent. 2 If it is epilepsy, what is the type of seizure or syndrome? Many people with juvenile myoclonic epilepsy (the tonic-clonic seizures and myoclonic jerks early morning) are not diagnosed, as the questions were not asked about myoclonic jerks or early morning the tonic-clonic seizures. This synthesis Drome responds very well to sodium valproate, but carbamaze pine can make seizures worse. All antiepileptic drugs seem equally effective (or ineffective) for partial seizures, but in primary and symptomatic generalized epilepsy seizures respond better to sodium valproate with lamotrigine as second-line therapy. 4 Is the drug given in an adequate dose? It’s amazing how many people are in more than one drug, all drugs in inadequate doses. Clinical results of an audit conducted in London, suggested that it could be cut in half seizures in approximately one third of the population by reducing the number of medications and that monotherapy with this drug in the correct dose. Epilepsy surgery is an option for patients whose seizures remain resistant to treatment with anticonvulsant medications who also have symptomatic localization-related epilepsy; a focal abnormality that can be located and therefore removed. The goal for these procedures is total control of epileptic seizures, although anticonvulsant medications may still be required.

SYMPTOMS OF EPILEPSY

Almost any type of behavior that happens repetitively may represent a seizure.

Generalized seizures:

All areas of the brain (the cortex) are involved in a generalized seizure. Sometimes these are referred to as grand mal seizures. To the observer, the person experiencing such a seizure may cry out or make some sound, stiffen for some seconds, then have rhythmic movements of the arms and legs. Often the rhythmic movements slow before stopping. Eyes are generally open. The person may not appear to be breathing. The person is often breathing deeply after an episode. The return to consciousness is gradual and should occur within a few moments. Loss of urine is common. Often people will be confused briefly after a generalized seizure.

Partial or focal seizures :

Only part of the brain is involved, so only part of the body is affected. Depending on the part of the brain having abnormal electrical activity, symptoms may vary. If the part of the brain controlling movement of the hand is involved, for example, then perhaps only the hand may show rhythmic movements or jerking. If other areas of the brain are involved, symptoms might include strange sensations or small repetitive movements such as picking at clothes or lip smacking. Sometimes the person with a partial seizure appears dazed or confused. This may represent a partial complex seizure. The term complex is used by doctors to describe a person who is between being fully alert and unconscious.

Absence or petit mal seizures:

These are most common in childhood. Impairment of consciousness is present with the person often staring blankly. Repetitive blinking or other small movements may be present. Typically, these seizures are brief, lasting only seconds. Some people may have many of these in a day. Other seizure types exist particularly in very small children.

The following symptoms may indicate someone has epilepsy. A medical exam is advised if one or more of these symptoms are present. The symptoms include:

- A convulsion with or without a fever
- Short periods of blackout or confused memory
- Occasional "fainting spells" in which bladder or bowel control is lost, followed by extreme fatigue
- Episodes of blank staring
- Brief periods of no response to questions or instructions
- Sudden stiffening or falls for no apparent reason
- Episodes of blinking or chewing at inappropriate times
- Dazed behavior; being unable to talk or communicate for a short time
- Repeated movements that look out of place or unnatural
- Sudden fear, anger or panic for no reason
- Odd changes in the way things look, sound, smell or feel
- Muscle jerks of arms, legs or body
- Clusters of swift jerking movements in babies

Conditions that may be mistaken for epilepsy:

- Seizures associated with high fever
- Fainting
- Sleep disorders: nightmares, narcolepsy, cataplexy
- Psychiatric disorders: panic attacks, fugue states, psychogenic seizures
- Transient ischemic attacks (TIAs): brief interruptions of blood flow to the brain
- Migraine headaches

CAUSES OF EPILEPSY

- Electrical malfunctioning within the brain due to damage of brain cells or inherited abnormality
- Main causes of petit mal are strained nervous condition, intestinal toxemia and digestive disturbances.
- Grand mal is caused by serious shock or injury to the brain.
- Heredity influences, typhoid and meningitis.

Circulatory disorders, allergic reaction to certain foods, cocaine habits, lead poisoning, alcoholism, low B.P., deficiency in minerals like Magnesium and calcium and mental conflict are other factors.

Type 1: Idiopathic Generalized Epilepsy

In idiopathic generalized epilepsy, there is often, but not always, a family history of epilepsy. Idiopathic generalized epilepsy tends to appear during childhood or adolescence, although it may not be diagnosed until adulthood. In this type of epilepsy, no nervous system (brain or spinal cord) abnormalities other than the seizures have been identified as of yet. The brain is structurally normal on brain magnetic resonance imaging (MRI) scan.

People with idiopathic generalized epilepsy have normal intelligence and the results of the neurological examination and brain scan (MRI) are usually normal. The results of the electroencephalogram (EEG - a test which measures electrical impulses in the brain) may show epileptic discharges affecting the entire brain (so called generalized discharges).
The types of seizures affecting patients with idiopathic generalized epilepsy may include:

- Myoclonic seizures (sudden and very short duration jerking of the extremities
- Absence seizures (staring spells)
- Generalized tonic-clonic seizures (grand mal seizures)

Idiopathic generalized epilepsy is usually treated with medications. Some forms of this condition that may be outgrown, as is the case with childhood absence epilepsy and a large number of patients with juvenile myoclonic epilepsy.

Type 2: Idiopathic Partial Epilepsies

Idiopathic partial epilepsy begins in childhood (between ages 5 and 8) and may have a family history. Also known as benign focal epilepsy of childhood (BFEC), this is considered one of the mildest types of epilepsy. It is almost always outgrown by puberty and is never diagnosed in adults.

Seizures tend to occur during sleep and are most often simple partial motor seizures that involve the face and secondarily generalized (grand mal) seizures. The results of the EEG are typically diagnostic, as patients with BFEC exhibit very specific EEG brain wave patterns.

Type 3: Symptomatic Generalized Epilepsy

Symptomatic generalized epilepsy is caused by widespread brain damage. Injury during birth is the most common cause of symptomatic generalized epilepsy. In addition to seizures, these patients often have other neurological problems, such as mental retardation or cerebral palsy. Specific, inherited brain diseases, such as adrenoleukodystrophy (ADL, which was featured in the movie Lorenzo's Oil) or brain infections (such as meningitis and encephalitis) can also cause symptomatic generalized epilepsy. When the cause of symptomatic general epilepsy cannot be identified, the disorder may be referred to as cryptogenic epilepsy. These epilepsies include different subtypes -- the most commonly known type is the Lennox-Gastaut syndrome.

Multiple types of seizures (generalized tonic-clonic, tonic, myoclonic, tonic, atonic and absence seizures) are common in these patients and can be difficult to control. Learn more about these seizure types.

TYPES OF EPILEPSY[2,3,4]

Major Types of Epilepsy

Types of Epilepsy	Generalized Epilepsy	Partial Epilepsy
Idiopathic (genetic causes)	- Childhood absence epilepsy - Juvenile myoclonic epilepsy - Epilepsy with grand-mal seizures on awakening Others	- Benign focal epilepsy of childhood
Symptomatic (cause unknown) or cryptogenic (cause unknown)	- West syndrome - Lennox-Gastaut syndrome - Others	- Temporal lobe epilepsy - Frontal lobe epilepsy Others

Type 4: Symptomatic Partial Epilepsy

Symptomatic partial (or focal) epilepsy is the most common type of epilepsy that begins in adulthood, but it does occur frequently in children. This type of epilepsy is caused by a localized abnormality of the brain, which can result from strokes, tumors, trauma, congenital (present at birth) brain abnormality, scarring or "sclerosis" of brain tissue, cysts or infections.

Sometimes these brain abnormalities can be seen on magnetic resonance imaging (MRI) scans, but often they cannot be identified, despite repeated attempts, because they are microscopic.

This type of epilepsy may be successfully treated with surgery that is aimed to remove the abnormal brain area without compromising the function of the rest of the brain. Epilepsy surgery is very successful in a large number of epilepsy patients who failed multiple anticonvulsant medications (at least 2 or 3 medications) and who have identifiable lesions. These patients undergo a presurgical comprehensive epilepsy evaluation in dedicated and specialized epilepsy centers.

There are many types of epilepsy. All types cause seizures. It can be difficult to determine what type of epilepsy you have because of the numerous possible causes, because different types of seizures can occur in the same person, and because the types may affect each person differently.

Some specific types of epilepsy are:

- Benign focal childhood epilepsy, which causes muscles all over the body to stiffen and jerk. These usually occur at night.
- Childhood and juvenile absence epilepsy, which causes staring into space, eye fluttering, and slight muscle jerks.
- Infantile spasms (West syndrome), which causes muscle spasms that affect a child's head, torso, and limbs. Infantile spasms usually begin before the age of 6 months.
- Juvenile myoclonic epilepsy, which causes jerking in the shoulders or arms.
- Lennox-Gastaut syndrome, which causes frequent and several different types of seizures to occur at the same time. This syndrome can lead to falls during a seizure, which can cause an injury.
- Temporal lobe epilepsy (the most common type of epilepsy in adults), which causes smacking of the lips or rubbing the hands together, emotional or thought disturbances, and hallucinations of sounds, smells, or tastes.

PATHOPHYSIOLOGY

Mutations in several genes have been linked to some types of epilepsy. Several genes that code for protein subunits of voltage-gated and ligand-gated ion channels have been associated with forms of generalized epilepsy and infantile seizure syndromes.[46] Several ligand-gated ion channels have been linked to some types of frontal and generalized epilepsies. Epilepsy-related mutations in some non-ion channel genes have also been identified. Epileptogenesis is the process by which a normal brain develops epilepsy after an insult. One interesting finding in animals is that repeated low-level electrical stimulation to some brain sites can lead to permanent increases in seizure susceptibility: in other words, a permanent decrease in seizure "threshold." This phenomenon, known as kindling (by analogy with the use of burning twigs to start a larger fire) was discovered by Dr. Graham Goddard in 1967. Chemical stimulation can also induce seizures; repeated exposures to some pesticides have been shown to induce seizures in both humans and animals. One mechanism proposed for this is called excitotoxicity. The roles of kindling and excitotoxicity, if any, in human epilepsy are currently hotly debated. Other causes of epilepsy are brain lesions, where there is scar tissue or another abnormal mass of tissue in an area of the brain.

PROGNOSIS

Some people with certain types of seizures may be able to reduce or completely stop their seizure medicines after having no seizures for several years. Certain types of childhood epilepsy goes away or improves with age -- usually in the late teens or 20s.For some people, epilepsy may be lifelong condition. In these cases, the seizure drugs need to be continued. Death or permanent brain damage from seizures is rare, but can occur if the seizure is prolonged or two or more seizures occur close together (status epilepticus). Death or brain damage are most often caused by prolonged lack of breathing, which causes brain tissue to die from lack of oxygen. There are some cases of sudden, unexplained death in patients with epilepsy. Serious injury can occur if a seizure occurs during driving or when operating dangerous equipment. For this reason, people with epilepsy whose seizures are not under good control may not be able to do these activities. People who have infrequent seizures may not have any severe restrictions on their lifestyle.

EXAMS AND TESTS

The first task facing the doctor is to decide if the event was a seizure or some other condition, such as fainting, that may mimic a seizure.

1. The doctor will take a history about the facts that surrounded the event. Any eyewitness accounts will be very helpful. Family history, social history, and past medical history are important as well.
2. Bring any medicine containers, including prescription drugs, to the hospital to help the doctor make the diagnosis.
3. A neurological examination will be performed. This may include some tests not usually performeN in other physical examinations, such as strength and reflex testing.
4. Depending on the history and physical examination, laboratory work may be ordered. This might include blood or urine testing.
5. Special testing such as MRI, CT scans, or EEG (brain wave patterns) may be performed.

TREATMENT OF EPILEPSY

Treatment can reduce or prevent seizures in most people who have epilepsy, which can improve the quality of your life. Controlling your epilepsy also lowers the risk of falling and other complications that can happen when you have a seizure. First your doctor will determine what type of epilepsy and what kinds of seizures you have. Treatment that controls one kind of seizure may have no effect on other kinds. Your doctor will also consider your age, health, and lifestyle when planning your treatment. It may take time for you and your doctor to find the right combination, schedule, and dosage of medicines to manage your epilepsy. The goal is to prevent seizures while causing as few unwanted side effects as possible. With the help of your doctor, you can weigh the benefits of a particular treatment

against its drawbacks, including side effects, health risks, and cost. After you and your doctor figure out the most effective treatment for you, it is important that you follow your treatment exactly as prescribed.

Initial treatment

Initial treatment for epilepsy depends on the severity, frequency, and type of seizures and whether a cause for your condition has been identified. Medicine is the first and most common approach. Antiepileptic medicines do not cure epilepsy, but they help prevent seizures in well over half of the people who take them.

Medicines that may be used first to treat epileptic seizures include:

- Carbamazepine (Tegretol, Carbatrol).
- Ethosuximide (Zarontin), for absence seizures only.
- Topiramate (Topamax).
- Oxcarbazepine (Trileptal).
- Phenytoin (Dilantin, Phenytek) or fosphenytoin (Cerebyx).
- Valproic acid or divalproex sodium (Depakene, Depakote).
- Phenobarbital (Luminal Sodium, Solfoton). Phenobarbital is a first-line medicine for newborns.
- Primidone (Mysoline). The body converts primidone into phenobarbital.

Other types of treatment may be used along with medicines to better control seizures, such as:

- Ketogenic diet, which is a high-fat diet that has been used with some success to treat people, especially children, who have severe, uncontrolled seizures. Some doctors may not support its use.
- Vagus nerve stimulation. The stimulator device is used with medicine or surgery to reduce seizures. It is not always clear whether to begin treatment after a first seizure. It is difficult to predict whether you will have additional seizures. Antiepileptic medicines are not usually prescribed unless you have risk factors for having another seizure, such as brain injury, abnormal test results, or a family history of epilepsy.

Ongoing treatment

If epileptic seizures continue even though you are being treated, additional or other antiepileptic medicines may be tried, including:

- Felbamate (Felbatol).
- Gabapentin (Neurontin).
- Lamotrigine (Lamictal).
- Levetiracetam (Keppra).
- Tiagabine (Gabitril).
- Topiramate (Topamax).
- Zonisamide (Zonegran).

- Benzodiazepines (for example, Diastat, Tranxene, Valium).
- Phenobarbital (Luminal Sodium, Solfoton). Phenobarbital is a first-line medicine for newborns.
- Primidone (Mysoline). The body converts primidone into phenobarbital.
- Pregabalin (Lyrica). This medicine is intended to be used along with other antiseizure medicine.

In addition to medicines, other treatments may be added to help reduce the frequency and severity of epileptic seizures, including:

- Ketogenic diet, which is a high-fat diet that has been used with some success to treat people, especially children, who have severe, uncontrolled seizures. Some doctors may not support its use.
- Vagus nerve stimulation. The stimulator device is used with medicine or surgery to reduce seizures.
- Brain surgery. Some people with epileptic seizures do not respond to medicine but have great success with surgery.
    - Anterior temporal lobectomy is the most common brain surgery for epilepsy in adults. It involves removing part of one of the brain's temporal lobes to reduce seizures.
    - Hemispherectomy is a common surgery for severe epilepsy in children. This technique involves removing the damaged side of the brain.
    - Corpus callosotomy is another common surgery for epilepsy in children. This technique involves surgically disconnecting the two sides (hemispheres) of the brain to prevent generalized seizures. It does not help with partial seizures.

Treatment if the condition gets worse

If you have epilepsy with seizures that have not been controlled with medicines or other treatments, you may want to consider having surgery to reduce the frequency and severity of the seizures. While brain surgery may sound frightening, it can be effective in reducing epileptic seizures and can greatly improve the quality of your life. Surgery for epilepsy may involve removing an area of abnormal tissue in the brain (such as a tumor or scar tissue) or the specific area of brain tissue where seizures begin. Anterior is the most common brain surgery for epilepsy in adults. It is the removal of part of one of the brain's temporal lobes to reduce seizures. Hemispherectomy is a commonly used surgical technique in children with severe epilepsy. In this procedure, the damaged side of the brain is removed. Corpus callosotomy, another common surgery, disconnects the two sides (hemispheres) of the brain to prevent generalized seizures in children. This surgery does not help with partial seizures.

Treating prolonged seizures.

Status epilepticus is a prolonged seizure or cluster of seizures that requires emergency treatment. It can happen in people who don't have a history of epilepsy and in those who do. A seizure or cluster of seizures that goes on for more than 20 to 30 minutes during which you or the person seizing does not wake up may cause brain damage. Emergency treatment should be started as soon as possible in these cases. Medicine used to stop the seizure is given in a vein (intravenously, or IV) so that it takes effect more quickly. If IV medicine is not available, medicine may be given rectally or as a shot in the muscle.Vital signs, such as blood pressure and pulse rate, will be checked. A physical exam and various lab tests are done to rule out or identify any life-threatening medical conditions (such as meningitis, stroke, or failure of the heart, liver, or kidneys) that may have caused the prolonged seizure.

SIDE EFFECT

- Common side effects include:
- nausea,
- abdominal pain
- drowsiness
- dizziness
- irritability, and
- mood changes.

Some side effects, which produce symptoms that are similar to being drunk, occur when the dose of Drug you are taking is too high. They include:

- Unsteadiness
- poor concentration
- drowsiness
- vomiting, and double vision

EPILEPSY AND WOMEN

Management of epilepsy during pregnancy:

Pregnant women with epilepsy need close monitoring of the disease and of fetal health. More frequent prenatal visits are often needed. Most women are treated with anticonvulsant medications. Monitoring of these medications is important for the continued control of seizures and reduction of side effects. Using as few medications as possible and at the lowest dose needed to control seizures is the goal of treatment.Women with epilepsy can usually labor and deliver as other women. Because stress may increase the risk of seizures, a calm environment and epidural anesthesia are often recommended.Women with epilepsy can increase their chances for a healthy pregnancy by getting early prenatal care and working

with their healthcare providers in the management of their disease. Always consult your physician for more information regarding treatment for epilepsy and pregnancy.

More than one million women of child-bearing age in the U.S. have seizure disorders. Not only do these women have to cope with seizures, they must also deal with the impact the disorder can have on their reproductive health. Epilepsy and seizure medications may affect contraception, pregnancy, hormone levels and the female reproductive cycle.

Epilepsy and Birth Control

Women with epilepsy who are sexually active should consult with their doctors regarding contraception and pregnancy. Many seizure medications can prevent birth control pills from working effectively, which can lead to an unplanned pregnancy. Other methods of birth control may be more effective in certain cases. Don't wait until it's too late to discuss birth control with your doctor.

In addition, all women of child-bearing age should take a multivitamin containing folic acid daily, to help prevent certain birth defects should pregnancy occur. Women who are taking seizure medications should be especially careful about taking a multivitamin and extra folic acid (check with your doctor about the exact dose) because some epilepsy medications deplete the body of important vitamins, particularly folic acid.

Epilepsy and Pregnancy

Women with seizures can have healthy children, provided they receive good prenatal care. It is very important that women with epilepsy discuss pregnancy with their doctors BEFORE getting pregnant.

Many patients with epilepsy take multiple medications in high doses that may lead to unnecessary drug exposure to unborn babies. In some cases, medications may be reduced before pregnancy, particularly if seizures are well-controlled.

If pregnancy occurs unexpectedly, women should NOT discontinue their seizure medication unless first consulting with their doctors. This commonly leads to more frequent seizures, which can also harm the baby.

Seizures During Pregnancy

The frequency of seizures usually does not change significantly during pregnancy. However, some women have seizures more frequently, while others experience fewer seizures. Blood levels should be checked often. This precaution is taken because medication blood levels gradually decrease during pregnancy and reach their lowest level around the time of delivery, which may result in breakthrough seizures. All seizures occurring during pregnancy should be reported to your doctor.

Delivery

Most pregnant women with epilepsy have normal vaginal deliveries, although cesarean sections (removal of the baby through an incision made in the abdomen) are

required in some cases. When seizures occur during labor or delivery, cesarean sections are usually performed immediately.

Breastfeeding

Women taking seizure medications can breastfeed their infants. Some medications can cause babies to become very sleepy and irritable after feedings. If these effects occur, discontinue breastfeeding until you consult with your doctor.

Medications and Birth Defects

Seizure medications can produce birth defects. On the other hand, uncontrolled seizures can pose serious problems to unborn babies. Severe birth defects are rare in infants of women who receive regular prenatal care and whose seizures are managed with medication carefully. Women should NEVER discontinue seizure medications without consulting their doctors.

Epilepsy and Hormones

Hormones influence the function of the brain throughout life. Many women have an increase in seizure frequency just before or during their menstrual periods. This is probably due to changes in estrogen and progesterone levels that normally occur during the female reproductive cycle. Many women with epilepsy have abnormal menstrual cycles, including missed periods. If missed periods occur regularly, consult your doctor.

Treatment of Epilepsy at home

- Strict diet, complete relaxation and optimum exercise is the key factor.
- Adopt an exclusive fruit diet for first few days.
- Sprouted Alfa Alfa seeds, raw goat milk, raw butter and homemade cottage cheese are essential.
- Take frequent small meals than few large ones.
- Apply mud packs to the abdomen twice a day to remove epileptic conditions.
- Alternate application of hot and cold packs at the back of the head for 2-3 minutes about 4 times is beneficial.
- Full Epsom salt baths twice a day are also beneficial.
- Excitements should be avoided and avoid all severe mental and physical stress and remain in good spirits.

CONCLUSION

Epilepsy that does not get better after two or three seizure drugs have been tried is called "medically refractory epilepsy." Some people with this type of epilepsy may benefit from brain surgery to remove the abnormal brain cells that are causing the seizures. Others may be helped by a vagal nerve stimulator. This is a device that is implanted in the chest (similar to a heart pacemaker). This stimulator can help reduce the number of seizures, but rarely stops the seizures completely.Sometimes, children are placed on a special diet to help

prevent seizures. The most popular one is the ketogenic diet. A diet low in carbohydrates, such as the Atkin's diet, may also be helpful in some adults. A number of systematic reviews by the Cochrane Collaboration into treatments for epilepsy looked at acupuncture, psychological interventions, vitamins and yoga and found there is no reliable evidence to support the use of these as treatments for epilepsy.

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