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Institute of Post Graduate Childhood Studies
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HEADACHES IN CHILDREN

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A Review
Submitted for partial fulfilment of
M.Sc. degree in childhood studies.
(Medical Department)

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By

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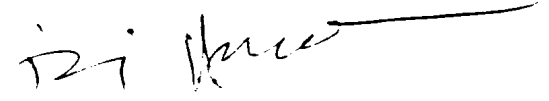
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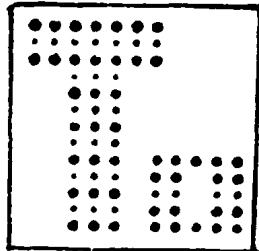
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MY MOTHER . . .

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CHAPTER I
INTRODUCTION

Introduction and importance of study:

Headache is an incidental symptom. It is one of the most frequent and distressing human discomfort. The problem of headache in childhood has received little attention in medical literature. However, it has been estimated that 60-75% of children have complained of significant headache by age of 15 years. Children especially under the age of 8 do not commonly develop headache that are primarily psychosomatic or hysterical. Therefore, if a child complains of such symptoms, neurological evaluation is indicated but less commonly, it is a symptom of slowly progressive central nervous system diseases (Doris, 1979).

Passchier and Orlobeke (1985) stated that more than 15% of school children reported headache occurring weekly. Commonest causes are fear of failure and school problems.

Vahlquist and others (1982) and Maratos and Wilkinson (1982) reported that more than 80% of migraine attack in children were precipitated by emotional upset.

To be sure that the cause of child's headache

is organic or functional, it appears from the first time that it is an easy matter but truly may be difficult for the most experienced physician. Therefore systematic history and physical examination with specific laboratory investigations will guide the clinician to the proper diagnosis. In most cases, the cause will be inorganic in only 5-15% of cases especially neurological one (Kramer, 1984).

Aim of the work :

The aim of this work is to study the subject of headache in children and its etiology. Fortunately, most headaches are benign, however the physician must remain alert to the exceptional instances where headache warns of serious illness. Treatment of headache actually needs a team work of clinicians, sociologist, psychologist and psychiatrist, all of them together will help to reach to the proper diagnosis and prevention of the diseases and their management.

Statement of the problem and hypothesis:

The prevalence of headache in children of different populations are not readily available.

Headache is a common complaint for approximately 6 to 10% of americans, however it is a severe recurring and periodical problem (Ziegler, 1978).

Egermark and Eriksson (1982) stated after a study of 402 swedish school children (7, 11 and 15 years), that the frequency of headache increases with age. Sex differences are found in older children 10 to 15 years, girls having more headache than boys, while no significant sex differences are found in 7 years old. It was reported that the prevalence rate of migraine is high in boy than girls under age of 10.

Sillanpaa (1983) reported that migraine which begins before the age of 7 disappears more commonly in boys than girls.

Collin et al (1985) stated that headache prevalence is high in school children, it is not a prominent cause of school absence. School absence

related to headache in children aged 5 to 14 years presented approximately 1% of all school absence, and was recorded in about 3.7% of children.

Hypothesis:

- Is the psychological state of the child affect in the pathogenesis of headache?
 - Is the dietary and environmental state influence headache pathogenesis?
 - Are the socioeconomic class of family and family relationship with child and also mother child relationship have a role in headache pathogenesis ?
 - Is student - teacher relation ship affect in the headache pathogenesis. ?
 - Evaluation of the present state of diagnosis and management of headache case in children in pediatric clinic.
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CHAPTER II

REVIEW OF LITERATURE

Mechanism of Headache:

Pain sensitive structures of the head include skin of the scalp and its blood supply and appendages, head and neck, the great venous sinuses and their tributaries, parts of the dura at the base of the brain, the dural arteries, the intracerebral arteries, fifth, sixth, seventh and possibly other cranial nerves and cervical nerves. The cranium and parenchyma of the brain, most of the dura matter and pia matter, the ependymal lining of the ventricle, and the choroid plexuses lack sensitivity. Generally, the pain pathways for structures above the tentorium cerebelli are in the trigeminal nerve. Pain that is referred from these structures is usually felt in the frontal, temporal, and parietal regions of the skull. Pain pathways for structures below tentorium cerebelli are in the Glossopharyngeal and vagus nerves and upper cervical spinal roots. Pain referred from these structures is usually felt in the occipital regions. (Ray, 1940).

Lance and Co-workers (1967) reported that headache is ordinarily attributed to one of the following mechanisms :

1. Sustained contraction of the musculoligamental structures of the head and neck. or
2. Involvement of the intracranial and extracranial blood vessels resulting in a specific inflammation of those structures. or
3. Traction or inflammation of the pain sensitive structures of the head, including cranial sinuses and afferent veins, the arteries of the dura matter and the major intracranial venous sinuses.

In migraine or vascular headache, vasoactive substances are liberated locally about painful and distended blood vessels. A combination of vasodilatation and sterile inflammation is needed for migraine syndrome to become manifest. Vasoactive substances are catecholamines, histamines, serotonin, prostaglandins, acidic lipid. Their actions differ from contraction or relaxation of smooth muscles, constriction or dilatation of arteries and veins, induction of water and sodium diuresis, fever. (Cuzon et al., (1966).

There are discrete brain stem sites that, when

electrically simulated are capable of suppressing pain transmission and produce profound analgesia. These loci correspond generally to the distribution of endogenous opiate like peptides, which have been named "Endorphins". (Simon and Hiller, 1978).

Sicuteri (1978) had suggested that abnormalities in endorphin turnover may explain many of the phenomena that occur during migraine attacks.

Factors affecting headache pathogenesis:

Dietary factors

These are implicated in the genesis of headache attack especially migraine attack in about 40% of cases. Some of these dietary factors are food additives (Sodium nitrite and mono sodium glutamate MSG and naturally occurring food components (tyramine, dopamine, caffeine, phenylethylamine and alcohol). Sodium nitrite is used as a preservative and coloring agent and a 5-10 mg of it may provoke headache in a migraine prone persons. Tyramine is an amino acid with sympathomimetic activity which lead to cerebral vasoconstriction and subsequent rebound vaso dilatation that causes a migraine attack in susceptible persons. Tyramine is found in aged cheeses (cheddar), bananas, peanuts, pickled herring and chicken liver). Dopamine is present in the pod of italian brood green (fava beans). Both caffeine and phenylethylamine (Sympathomimetic agent) are found in chocolate. Caffeine is also an ingredient of coffee, cola, tea. Amigraine like withdrawal headache may occur if excessive caffeine consumption is suddenly interrupted. Alcoholic beverages may provoke both migraine and other vascular headache. Ethanol has vasoconstrictive properties and can produce migraine. Blood glucose

level has an important effects on the tone of cerebral blood vessels, marked vasodilation may occur if level is reduced by insulin or others. Prolonged fasting may also cause hypoglycemia that can provoke typical vascular headache (Phiroze Hansotia, 1986).

Environmental factors

Bright lights, strong sunshine, glare from snow, excessive exposure to T.V., video display terminal, certain strong odours (cigarette smoking, perfume) are known to cause headache in some patient. Alteration in serum serotonin have been documented in relation to certain weather related phenomena. High altitude or the atmosphere of a pressurized cabin in a commercial airlines may lead to migraine attacks or a similar vascular headaches.

Pharmacological factors:

Migraine is most commonly aggravated in susceptible women by estrogen given for oral contraception or post menopausal symptoms. Vasodilator used for treatment of hypertension and coronary artery disease may also provoke migraine. Anti hypertensive agent, reserpine (Sandril, serpassil) may increase

migraine frequency and exacerbate depression in some patient. Nitrites (nitroglycerine) used for the treatment of angina pectoris may also adversely affect the frequency of migraine.

Psychological factors

Although personality is not a constant factor in migraine attack, many attacks are provoked by emotional stress, but there are many factors like insufficient schooling, family problems, competition and excessive parental demand, mood changes and other maladjustment, all of them have good role in triggering the headache pathogenesis.

Types of headache

Before adolescence, most chronic, intermittent or recurrent headache in childhood is migraine expressed in one form or another. In adolescents, muscle contraction headache becomes a more frequent consideration along with migraine. Eye strain and sinus problems are overemphasized as causes of headache. (Saper, 1978).

The earliest criteria widely used for migraine was that of Vahlquist (1955) and had been used as the major definition for inclusion criteria in the Scandinavian prevalence studies, right up to Sillanpa classification in 1983. Most of these are based on the symptoms complex, pathophysiology, or the presumed location of the abnormality. The most useful clinical classification is that by temporal pattern, acute, acute and recurrent, chronic and progressive and chronic non progressive. (Rothner, 1983).

Acute headache occurs as a single event that the patient has never experienced before. The differential diagnosis includes a wide variety of disorders, such as infection, systemic illnesses, or hypertension.

Acute recurrent headaches occur periodically and are separated by pain free intervals, the best example of this group is migraine headache.

Chronic progressive headaches tend to increase in severity and frequency overtime e.g. brain tumor, hydrocephalus.

Chronic non progressive headache tends to occur either daily or several times weekly, these headaches are frequently of psychological origin.

Acute headache

Acute headache may be either generalised or localised. With acute generalised headache, additional history taking and physical examination are essential together with laboratory tests. Immediate evaluation is necessary when the patient is in a altered state of consciousness or has a focal neurologic abnormality or rigidity. Signs such as hypertension, fever, papilledema and retinal hemorrhage aid identification of basic process. Analgesics or sedatives should be avoided because they may obscure the clinical picture.

Acute localised headache may result from sinusitis dental disorders such as caries and malocclusion,

temporomandibular joint dysfunction, ocular abnormalities (refractive errors and astigmatism), head trauma and otalgia.

The most common acute recurrent headaches are migraine and also migraine variants. (Bille, 1962 and Rothner (1986) and Congdon and Forsythe (1979).

Chronic headache

Most children with chronic progressive headaches have an organic disorder (hydrocephalus, pseudotumour cerebri brain tumours, less common causes of these headache are subdural haematoma and abscesses. Investigation and neurological examination as well as C.T. scan are the most rapid and useful to aid in diagnosis of an intracranial process (Bell and McCormick, 1972).

Hydrocephalus occurs when the absorption of C.S.F. or its circulation through the ventricular system is blocked. In the young child, rapid enlargement of head, splitting of suture, bulging fontanelle and symptoms of increased intracranial pressure. In older children, the symptoms are those of increased intracranial pressure and sixth nerve palsy.

Pseudotumour cerebri is defined as increased

intracranial pressure without brain lesion. The common is seen in obese adolescent girls with menstrual irregularity. Patients usually present with headache, papilledema and sixth nerve palsy. The C.T scan shows no abnormality and lumbar puncture demonstrates normal constituents.

Intracranial tumour, pain is frequently present in the morning and accompanied by vomiting and increased by straining. Frontal headaches are often caused by supratentorial tumour and occipital headaches by infratentorial tumour. If the tumour is in the mid line. the only symptoms are those of increased intracranial pressure and papilledema. If the tumour is asymptomatic focal findings may be present (Honig and Charney 1982).

In chronic non progressive headacher, headaches thought to be precipitated by or associated with emotional causes and to have no organic substrate are called functional headaches. These include muscle contraction headache or tension headache, depression conversional reaction, expression of malingering and it may be related to previous trauma.

A syndrome consisting of paroxysmal migraine headaches superimposed on daily muscle contraction headache is called the mixed headache syndrome (Rothner, 1983).

Friedman and others (1962) classify headaches as following :

A. Functional headaches:

- Primary vascular headache.
- Psychogenic headache: caused by depression anxiety, conversion reaction and psychological disturbances.

B. Organic headaches:

- Intracranial lesions.
- Extracranial lesions (eye, ear, nose, throat, bones of skull and neck.
- Headaches related to cranial trauma.
- Toxic vascular headaches related systemic diseases (hypertension, allergy, vasculitis, febrile illness, medications).
- Post lumbar puncture headache.

Doris (1979) classified headache in children as following :

- A. Vascular headaches:
- Simple migraine.
 - Complicated migraine.
 - Cluster headaches.
- B. Non vascular headaches.
- Tension headache.
 - Depression.
 - Sinus infection.
 - Secondary to eye and dental problems.
- C. Post traumatic headaches.
- D. Headaches as a result of neurological disorders:
- Tumour of the brain.
 - Pseudo tumour cerebri.
 - Meningitis and encephalitis.
 - Psychomotor seizures and encephalopathies.

Classification of headache:

In order to know every types of headaches, we must classify headaches according to its etiology or its location. (Rothner, 1979).

A. According to etiology:

(1) Vascular headache.

Migraine and non migrainous dilalation vascular headaches are due to arterial dilalation.

(2) Psychogenic headache.

Headache of illness in which the prevailing disorder is a delusional or a conversion reaction and a peripheral pain mechanism is non-existent.

(3) Muscle contraction headache (Tension headache)

It is associated with sustained contraction of skeletal muscles in the absence of perminent structural change.

(4) Combined headache, vascular and musclo-contraction.

(5) Headache of nasal vasomotor reaction :

Headaches and nasal discomfort resulting from congestion and edema of nasal and para nasal mucous medmbrane.

(6) Headaches due to a disease in the acular, aural, nasal and sinusal, dental or other cranial or neck structure.

B. According to Location:

1. **Extracranial:**

The most common extracranial sources of headache are the pericranial muscles and the extracranial arteries. It may arise from pathologic conditions of nasal passages, nasal sinuses, ear, eye, throat or cervical spine. It may occur as a part of the symptomatology of a great variety of diseases of systemic origin such as (hypertension, fever).

2. **Intracranial:**

Mathew, (1978) classified the intracranial headache into the following :

- a. Meningeal irritation : subarachnoid haemorrhage, meningitis, meningoencephalitis, and post pneumoencephalographic reaction.
- b. Traction or displacement of intracranial pain sensitive structures :
 - I. Space occupying lesions: brain tumour, abscess and hematomas.
 - II. Increased intracranial pressure: secondary to space occupying lesion or secondary to obstruction to cerebro spinal fluid pathway or benign intracranial hypertension.

III. Reduced intracranial pressure : after lumbar puncture, post traumatic, post surgical tear of meninges and cerebro spinal fluid leakage.

- c. Simple intracranial vasodilation :
- Medications : (Nitrites, Histamines)
 - Circulating toxins: (acute infectious febrile illness, foreign protein reaction).
 - Metabolic :
 1. Hypoxia (chronic pulmonary insufficiency, high altitude).
 2. Hypercapnia (chronic pulmonary insufficiency, pickwickian syndrome, extreme obesity).
 3. Hypoglycemia (insuline induced or spontaneous).
- d. Postconcussional or post convulsive.
- e. Acute cerebro vascular insufficiency.
- f. Headache in hypertensive patient or acute hypertensive reaction (acute nephritis, pheochromocytoma, hypertensive encephalopathy).
- f. Cough headache and effort or exertional headache of benign etiology.
3. Cranial nerve disorders :
- compression of cranial nerves.
 - Extreme stimulation.
 - Trigeminal and glossopharyngeal neuralgia.

Psychogenic headache

Psychogenic headache represents about 80% of all types of chronic headache in children. To diagnose psychogenic headache, patients show no evidence of neurologic diseases medical illness, or an organic cause of head pain and do not take any medication which could produce headache. All patients of psychogenic causes must do headache questionnaire, social adjustment scale questionnaire, a mini test of mental status, I.Q. testing, and appropriate neuropsychological testing for learning disabilities. After that depression is found to be diagnosed in 40% of patient with chronic headache at Marshfield clinic (1980), this type of depression has a slow onset with no pre-headache phase, it is described characteristically as a band like pressure around the head. (Doris, 1979). Other significant psychiatric illness (conversion reaction, thought disorders, manic-depressive illness, chronic anxiety reactions, personality disorders) were diagnosed in 8% of psychogenic patients, the remainder of patients have a variety of adjustment problems and are categorised in two large groups, the first, consists of patients with insufficient schooling, early adolescent personality and behavioral disturbances resulting in truancy, poor occupational history and

other adjustment problems and patient with school dropouts. A disproportionately high percentage of these patients have learning disabilities including dyslexia. The second group include intense, highly motivated, compulsive professional persons, business executives, persons whose position involved considerable responsibilities, and persons who took on more responsibility than they could comfortably handle. Patients in both groups seem to be unable to cope with their environment. Appropriate analysis of such patients may help them to take corrective steps that would improve their life - style and reduce or eliminate headaches.

In most children, problems relating to school, family strife, a sibling leaving home, competition and excessive parental demands are identified, these factors may not be apparent during the initial interview.

Headaches may be a sign of underlying depression, manifestation of which include mood change, withdrawal, poor school performance, sleep disturbance, aggressive behavior, lack of energy, somatic complaints, school phobia and weight loss (Bille, 1962).

When headache is severe in association with

depression antidepressants are utilized as beneficial adjunct to psychotherapy.

Conversion hysteria implies anxiety converted to a somatic symptoms. The symptoms usually provide a secondary gain such as sympathy, attention and relief from responsibilities . (Rothner, 1979).

The pain of psychogenic headache may be occipital, temporal, or frontal in distribution, but it is almost invariably bilateral aching or pressure like pain. The unilateral throbbing pain characteristic of migraine is uncommon.

The diagnosis of psychogenic headache should not be put off until all physical causes are excluded. The physician should be conscious of general characteristics of the psychogenic pain. If the headache has been present continuously for more than 4 weeks, in the absence of neurologic signs, it is most likely to be psychogenic in origin, this is especially true when coupled with prolonged absence from school. If this is suspected during the initial interview, it should be discussed openly with parents and the child. Attempts

should be made to determine the psychopathology and its etiology (Okasha and Sadek, 1973).

Vascular Headache

Migraine

Definition

Migraine is a paroxysmal disorder of cephalic arteries in which initial vasoconstriction is followed by vasodilatation and is probably inherited as an autosomal dominant with greater penetrance in females (Wolff, 1963 and Congdon et al., 1979).

Vahlquist et al., (1982) defined migraine as paroxysmal headache separated by headache free interval and accompanied by two of the following four features, nausea, focal cerebral symptoms, unilaterality and positive family history. The male / female ratio is approximately 2 to 3.

The word migraine is a french derivative of the Greek word for hemicrania or half head. Migraine is a common malady that affects from 2 to 20% of all population. Migraine headache usually lasts from a few minutes to few hours, but rarely longer than 2-3 hours for each individual headache. (Doris, 1979).

The family history is positive in 70-90% of all cases and attacks begin by age of 15 years in 5% of cases (Rothner, 1986).

The prevalence of migraine in school children increases from 1% at the age of six years to 4% in boys and 6.6% in girls aged 13 to 15 years. From puberty onward, the prevalence in males is about 10%, but in females reach about 20% during reproductive years of life. (Bille, 1962 and Dalsgaard-Nilson, 1970).

Biochemical and physiological changes:

Stanford and Green, (1970) found that the headache was relieved after surgical treatment of Conn's disease because the aldosterone hormone may be responsible for sodium retention of migraine attacks.

Mean plasma serotonin has been found to fall during headache (Anthony and Lance, 1975).

Kalendousky and Austin, 1975 postulated that platelets aggregability was more pronounced in patients with complicated migraine.

Plasma level of noradrenaline decline and reaching a minimum 1.5 hour before the peak of headache and then rise as the headache intensity eases (Fog-Moller et al., 1976).

Phases of migraine attack

1. Preheadache phase: during this phase, sudden vasoconstriction of blood vessels in the head takes place, preheadache symptoms (auras) include visual disturbances (flashing lights), speech difficulties, dizziness, weakness and mood changes.
2. Headache phase: during this phase, excessive widening or dilation of the blood vessels inside the head occur, this causes a throbbing or pounding headache that may be associated with nausea and vomiting.
3. Late head phase : the walls of the dilated vessels becomes swollen and rigid. The headache then changes from pounding to dull and the scalp overlying the head area may feel tender to touch.

Muscle contraction headache
(Tension headache)

Bille, 1962 postulated that this type of headache was the common type of headache in adolescents and occurred in 16% of patients by the age of 15 years. The patients described their pain in a vague and non specific manner.

This type of headache occurs after prolonged tension or sustained contraction of neck and scalp muscle, for example during anxiety, tension and stress related to school performance, family troubles, peer pressure are frequently apparent during the interview. The headache typically begins after the tension is eased and the patient begins to relax. No prodromal or preheadache phase occur with tension headache. The pain may last from several hours to days, it is usually felt all over the head, non pulsating and rarely accompanied by nausea or vomiting. (Friedman et al., 1954 and Friedman, 1979).

Other common types of headaches in children

1. **Headaches of nasal vasomotor reaction:**

This type of headache is resulting from congestion and edema of nasal and paranasal mucous membrane in rhinitis whether allergic or infective (common

cold, exanthemata), nasal septal deviation, adenoids, foreign bodies or any tumour (benign or malignant).

Sinus headache is common with acute sinus infection. At times, the pain may be referred elsewhere in the head, but usually it is present in areas adjacent to the inflamed sinus and is associated with tenderness over that area. The pain is deep and dull and aching and is intensified by stooping, coughing or head down position.

2. Stomachaches and headaches:

The children with headache and those with stomachache are more likely to have behaviour problems than children without these symptoms. The mother of depressed mood is known to be associated with preschool behaviour problems in her children and there is great association between behavioural problem and stomachache and headache in children especially if the mother has a depressed mood. The mother's depression has a good role in reporting of headache and stomachache of the child in comparing with role of teachers in school. (Richman et al., 1982 and Zuckerman et al., 1987).

3. Head pain can occur as result of dental problems such as gum infection, tooth abscesses, dental caries, which are commonly occurred in children as a result of bad hygiene, excessive eating of sugary foods (Chocolates)
4. Eye strain can cause headache that are primarily due to muscle tension. Refractive errors whether myopic or hypermetropic cause bifrontal headache which usually disappears with correct eye spectacles.
5. Exertional headache occurs due to overactivity of the children, sometimes not constantly, the headache comes on during exertion or walking more even relatively mild exercise such as running. Its cause is unknown.
6. Cough headaches: Excessive coughing in whooping cough and straining by constipation or sneezing produce an immediate severe sharp pain in the head.
7. Post traumatic headaches: After head injury, pain or tenderness is present at the site of impact for hours or several days. However, about 30% of head injured children develop post traumatic headache, i.e.

headaches which have persisted for more than two months.

These headaches may be constant or intermittent. cortex, occipital, alone or in combination. They may be unilateral, bilateral, or generalised and patients may exhibit more than one type of headache. Pain may be aching, pressing or pounding, depending on the specific mechanism involved (Speed, 1982).

The mechanism involved are muscle contraction, vasodilatation, scar formation in the scalp, or injuries to neck structures.

Intracranial mass lesions

1. Brain abscess

Children with cyanotic congenital heart diseases are at risk of development of pyogenic abscess of the brain. It may result from spread of infection from foci in other locations, as from mastoids, paranasal sinuses, skull lung abscess, empyema or endocarditis.

Clinical signs include low grade fever, signs

of increased intracranial tension, neurological signs depending on the site of the abscess and seizures (Hutten locher, 1983).

Investigations should be done as computed tomography, electroencephalography, C.S.F analysis, lumbar puncture, x-ray of skull and lungs.

Excision of the abscess, including its eapsule may be useful in treatment of brain abscess in ceratain conditions.

2. Subdural and epidural empyema

They are usually secondary to frontal sinusitis or to infection of the scalp and skull. The purulent-mass compresses the underlying brain tissues and causes throm bophlebitis of the cortical veins that pass through the subdural space, in terfering with the venous drainge leading to severe cerebral swelling (Alphen and Dreissen, 1976).

The clinical picture includes fever, severe headache, lethargy, convulsions and hemiparesis.

The diagnosis is confirmed by computed tomogra-phy. Management consists of prompt surgical drainage and antibiotic therapy.

3. Chronic subdural hematoma

It is due to leakage of blood from torn frontal or parietal cortical veins which traverse the subdural space, within days or sometimes after initial head trauma. The diagnosis is confirmed by computed tomography. Treatment is by surgical evacuation of the chronic subdural haematoma.

4. Hydrocephalus

It is due to obstruction of C.S.F. flow, which lead to head enlargement of child. When the onset of hydrocephalus is late in childhood, there may be no appreciable enlargement of the head. Instead, the child has evidence of increased intracranial pressure with severe headache and papilledema.

5. Neoplasms of the brain

After leukaemia, brain tumour are the most common types of neoplasms in children. Incidence is highest during the 2nd half of the first decade, but may occur at any age, including early infancy (Hutten locher, 1983).

Tumours of the cerebellum are the most common and account for about 40% of the total. Tumours in other posterior fossa including brain stem and 4th ventricle make up about 15%.

The clinical manifestations in childhood are largely those of increased intracranial pressure because the majority of the tumours are in the posterior fossa and midline, where a mass lesion will obstruct C.S.F. circulation. Brain tumours may also result in epilepsy or focal neurological deficits.

Headache is a common early symptom, characteristically occurring shortly after the child arises from bed or following change in head position at other times of day (Kenning et al., 1981).

Vomiting is common, it eventually becomes projectile and is characteristically unaccompanied by nausea. Papilloedema is often present but less likely in early infancy.

Other neurological manifestations may be observed according to the site of the neoplasm as in medulla, hemisphere (unilateral or bilateral), third ventricle, hypothalamus, cerebellar hemispheres, pituitary tumour.

Epilepsy may result from irritation of cerebral hemisphere by the neoplasm, particularly if the epilepsy is focal.

Barlow (1982), emphasized the importance of behavioural changes or changes in school performance as a complaint that either alone or in association with headache, should make the physician include cerebral neoplasm in his differential diagnosis.

Investigations:

Fundoscopic examination, CT-scanning, skull-x ray, cerebral angiography, E.E.G., lumbar puncture are indicated.

Treatment :

Surgical removal is directed toward the tumour without causing added neurological deficits, this may be followed by radiotherapy or chemotherapy. Headache should be treated with simple analgesics but opiates are contraindicated as they depress the conscious level and respiration.

6. Pseudotumour cerebri

It is a syndrome defined by increased intracranial pressure with no evidence of nervous system dysfunction, it may occur as a complication of hypoparathyroidism, galactosemia, corticosteroid therapy, especially while the dose is being tapered off or after it has been discontinued, tetracycline therapy, or

high doses of vitamin A. Also vitamin A deficiency in infancy can produce a similar condition which respond to replacement therapy of Vit. A. (Edward and Norman, 1982).

The majority of cases are of obscure etiology, but demonstrate abnormalities or alteration in endocrinological or metabolic function.

CT scan is of great value to exclude intracranial neoplasms.

The chief danger is damage to optic nerve from chronic compression.

Adrenocortical steroid therapy is very effective, but relapses may occur when therapy is discontinued. weight reduction is indicated if the child is obese. (Huttenlocher, 1983).

7. Aneurysms and arterio venous malformations

The most common aneurysms are due to congenital malformations in the media of arterial walls at points of bifurcation. The incidence is increased in patients with coarctation of the aorta and polycystic kidney.

The most common sites are the anterior communicating and anterior cerebral arteries and terminal branches of the internal carotid artery.

Presentation of patients are usually symptoms of subarachnoid and intracerebral haemorrhage following rupture. The typical history involves a previously well child who suddenly develops excruciating headache and then lapses into stupor and coma (Bartlett, 1981).

But arterio venous mal formations are a group of congenital abnormalities in which the normal development and functional relationship of a group of arteries, capillaries and veins are deranged by enlargement of one or more elements.

An angiomas mal formation is the commonest cause of a spontaneous intracranial haemorrhage in patient under 20 years of age (Bartlett, 1983).

Investigation:

- Fundoscopic examination may show retinal and preretinal haemorrhage.
- C.S.F. is bloody or xanthochromic.

- Cerebral angiography and C.T scan are useful.

Treatment is by excision of malformation or aneurysm.

Headache of systemic origin

1. Fever headache or infections disease headache

Most headaches seen in infections diseases are related to fever. It is of a throbbing nature and diffuse throughout the head.

Bacterial and viral infections diseases are common in children. Some of the infectious diseases in which headache is a frequent symptom are :

Pneumonia, tonsillitis, adenoiditis, scarlet fever, typhoid, influenza, poliomyelitis, rubella and infectious mononucleosis.

The treatment of headaches in infections diseases should be directed toward removal of the cause or treating the infectious disease itself. The symptomatic relief of this type of headache is usually obtained by simple analgesics as solicylates.

2. Headache due to endocrinal disorders

The mechanism of the pain occurring with various

endocrine disorders are not well understood. It appears that vasodilatation and vascular mechanisms usually play a dominant role, tumour of pituitary or hypothalamic area may cause headache from pressure and traction on pain sensitive structures within the cranium.

Some of the endocrinal disorders associated with headaches include :

Hypoglycaemia, thyroid dysfunction, adrenal insufficiency, pituitary lesion and pheochromocytoma.

Pheochromocytoma is a tumour (usually benign and may be malignant) of the chromaffine cells of suprarenal medulla which secretes profuse doses of adrenaline and nor adrenaline. The clinical picture includes paroxysmal hypertension which does not respond to medical treatment, severe headache, pallor and precordial pain.

Investigation by catecholamine assays for measurement of vanillylmandelic acid in urine V.M.A. (2-6.5 mg/24 hours normal value) and radiographic studies (I.V.P, perirenal insufflating and adrenal angiography) are recommended.

3. Hematologic disorders and headache:

Anaemia, if severe enough will result in cerebral hypoxia (Dalessio, 1972).

Hypoxia is a cause of cerebro vascular dilatation. Headache of anaemia is a generalised throbbing discomfort. Factors influencing vasodilatation such as exertion, fever, straining, bending will aggravate the headache of anaemia.

Polycythaemia is a type of blood dyscrasia in which vascular distention, increased blood viscosity and increased intracranial pressure account for the headache pathogenesis. (Williams, 1972). The headache of which is usually generalised dull, throbbing and pounding type. It is aggravated by factors which increase central venous and cerebral pressure.

Headache in a leukaemic patient may be due to intracranial hemorrhage, leukemic infiltration of the meninges, tissue hypoxia by decrease blood flow and meningitis due to alteration of immune system. Headache in this condition is generalised, non throbbing, related to position and activity (Schwartz et al., 1975).

Infiltration of the brain or meninges by Hodgkin's or non Hodgkin's lymphomas may cause headache. The mechanism is due to distortion of pain sensitive structure by space-occupying lesions or involvement of cranial nerves, skull and vertebrae. Fever or central nervous infection may add another cause of headache (Bunn et al., 1976).

4. Cardiac diseases and headache

In aortic insufficiency, the passage of a large volume of blood throughout the carotid arteries cause pulsatile discomfort due to stretching of the carotid sheath (Kunkel, 1978).

In subacute bacterial endocarditis, headache is due to arteritis which develop from septic emboli or due to fever. Headache is generalised and usually of a pulsating character.

In coarctation of the aorta, there is a congenital narrowing of the aorta mostly at the junction of the arch with descending aorta.

Signs :

- Diastolic pressure is high in both upper and lower limb but systolic pressure is much higher in upper limb than lower limb.
- Femoral pulse is delayed or weak.
- Chest x-ray will show rib notching (Roesler's notch).
- Signs of increased blood pressure -- headache.
- Plasma urea and creatinine are required as a measure for renal excretory function.

5. Renal diseases and headache

In acute glomerulonephritis, headache is generalised, constant and pulsatile. It is due to hypertension, electrolyte abnormalities or fluid retention causing cerebral edema.

Chronic renal diseases, as chronic glomerulonephritis, pyelonephritis, nephrosclerosis, hydronephrosis and tumours are associated with headache (Raskin and Fishman, 1976).

Renal artery stenosis is caused by congenital factor, idiopathic fibrous and fibromuscular lesions. embolism or thrombosis, and atherosclerosis.

Deminished renal blood flow will cause renin release from juxta glomerular apparatus with release of angiotensin which has a vosopressor effects and stimulate the suprarenal cortex to secrete aldosterone, these changes result in hypertension. Investigations for renal artery stenosis should include :

- Renal angiography.
- Assay of renin and angiotensin in renal blood flow.
- Aldosterone assays.
- Electrolyte studies for Na⁺, K⁺.

6. Bone diseases and headache

Any disease of the bone which affects the skull or upper cervical region may cause headaches. Some bony conditions involving the skull are paget's disease fibrous dysplasia, eosinophilic granuloma, oxycephaly and the various lymphomas (Kunkel, 1978). The etiology of headache is usually displacement of cranial structures or compression of cranial nerves.

7. Gastrointestinal diseases and headache:

Inflammatory bowel disease such as regional ileitis or ulcerative colitis may be associated with headache. The mechanism of headache may be due to fever, toxæmia or emotional problems.

The headache of constipation is a generalised throbbing pain which is worse with straining, bending, stooping, coughing or sneezing. The etiology of headache is unclear whether it is due to fecal retention which may result in the absorption of toxic substances, or it is due to reflex dilatation of extracranial arteries initiated by the distended colon. Associated emotional problems and nervous tension may be aggravating factors.

8. Medications :

Nitrates, hydralazine, papaverine, chlorpromazine and clofibrate which cause vasodilation and resulting headache.

Reserpine, because of serotonin depletion may also cause chronic vascular headache.

In domethacin may aggravate or cause vascular headache. It causes vasoconstriction, which is followed by rebound vasodilatory phenomenon in a few hours (Kunkel, 1978).

9. Hypertension headache in children:

Causes :

1. Coarctation of aorta is the most common cause of headache in children.

2. Renal parenchymatous diseases e.g:
 - acute and chronic glomerulonephritis.
 - acute and chronic pyelonephritis.
 - congenital polycystic kidney.
 - renal artery stenosis (congenital type).

3. Endocrinal causes
 - pheochromocytoma.
 - cushing's disease.
 - aldosteronism.

10 Epilepsy and headache:

Epilepsy is defined as brief disorder of cerebral function, usually associated with a disturbance of consciousness. There is after, a phase of variable duration where the patient is confused and may suffer from headache. The etiology of headache is obscure but it may be due to muscle traction or increased intracranial tension.

Specific headache syndromes

1. Classic migraine

Headache of classic migraine is recurrent and periodic. Familial and personality factors are of great importance in its pathogenesis.

As a rule, the prodromes are sharply defined. Contralateral neurologic manifestations, usually visual but occasionally motor or sensory, are common. The visual symptoms include scotomata, fortification spectra, field defects and transient anisotropy (Fenichel, 1981).

The preheadache symptoms of classic migraine may appear transiently, inconstantly or regularly, developing over 10-20 minutes. Visual prodromes may be accompanied by EEG changes consisting of a slowing of rhythm in the affected occipital lobe.

In some patients sensory disturbances may develop simultaneously in fingers and tongue. In some children the aura may be non visual and includes weakness, aphasia or parathesia.

As the aura subsides, the pain begins, it is unilateral and throbbing. Vomiting, abdominal pain,

photophobia and phonophobia follow. The child wishes to sleep and upon awakening is frequently well.

2. Common migraine:

Common migraine occurs more frequently than classic migraine in children.

The prodromes are not sharply defined and they may precede the attack by several hours or days. These vary widely from patient to patient and include psychic disturbances, fatigue, nausea, vomiting and changes in fluid balance.

The actual headache episode is frequently longer than in the classic type. It may last from many hours to several days. The pain is unilateral or bilateral and aching or throbbing in quality. Common symptoms in both types include irritability, chills, pallor, localised or general edema, sweating and diuresis.

The occurrence of nasal signs and symptoms may lead the physician to ascribe the headache to involve nasal structures. Sensitivity to light and noise is a prominent features. This type of migraine commonly occurs in weekends and holidays. (Fenichel, 1981).

3. Cluster headache

Cluster headache is not common in children but can be seen in adolescent males. It occurs in a series of closely spaced attacks occurring several or many times daily for a number of days or weeks. These clusters may be followed by remissions of months or even years.

Prodromes are uncommon. The pain occur suddenly and awake the patient after an hour or two of sleep. Congestion of conjunctiva, lacrimation, occasionally ptosis of eyelids and sweating are associated manifestations. After twenty to ninety minutes the pain stops suddenly as it began.

Cluster headache is more common in boys but may occur in girls . Not all agree that this type of headache should be classified under migraine.

The cause is not known, but may point to a sudden discharge into the blood stream of histamine which cause widening of blood vessels in the head (Doris, 1979).

4. Hemiplegic migraine

It may be present with initial phase of weakness, but hemisensory symptoms may persist after the headache ceases. Essential differential diagnosis includes infantile or childhood hemiplegic syndrome, stroke in children such as Moya-Moya disease, a postietal Todd's paralysis, intracranial hemorrhage or brain abscess.

5. Ophthalmoplegic migraine : is a rare syndrome

and its presumed pathology is edema of the carotid artery and compression of oculomotor nerve, the presence of vascular anomalies such as aneurysm must be ruled out, at least the first time the syndrome presents (Robertson, 1978).

6. Basilar migraine:

Basilar migraine is defined as recurrent attacks of neurologic dysfunction referable to the brain-stem and cerebellum (post fossa lesion) (Golden and French, 1975). The episodes usually begin with blindness or with the appearance of a vivid visual hallucination of unformed images or photopsia involving the whole visual field. This is accompanied or followed by a varying admixture of vertigo, ataxia, dysarthria, tinnitus, and perioral paresthesia.

7. The Alice ~~-in-~~ wonderland syndrome:

This syndrome is rare and presents as perceptual illusion, distortion of spatial relations and time sense and occasionally micropsia and metamorphosis. They occur before, during or after headache or may occur without headache. The syndrome is probably secondary to ischaemia in the distribution of the posterior branches of middle cerebral artery (Golden, 1979).

8. Confusion migraine:

It presents as an acute confusional state and must be differentiated from acute toxic encephalopathies, psychotic state and non convulsive status epilepticus (Gascon, 1970). There is usually partial or complete amnesia of the episode and it is now known that attacks may be repetitive in the same patient. (Khyai and Fenichel, 1978).

9. Facial migraine:

It is rare in children, pain is usually reported to be located at the jaw or neck, although sometimes periorbital or maxillary pain occur. It is deep, dull and aching, occasionally sharp and throbbing. Attacks take place from one to several times per week, and

each one lasting minutes to hours. Tenderness and prominent pulsations of the cervical carotid artery, and soft tissue swelling overlying the carotid, are usually present ipsilateral to the pain and many patients also report a throbbing ipsilateral headache concurrent with carotidynial attacks (Louskin, 1977). Dental trauma appears to be a common precipitant of this syndrome.

10 Cyclic Vomiting

Episodes of unexplained vomiting leading to acidosis and dehydration in children have been reported. In some of these patients, classic migraine occurs later in life and may have a family history of migraine .

11. Paroxysmal vertigo

This migraine variant consists of episodes of vertigo occurring between the ages of 2 and 4 years. The episodes are sudden and brief. Nystagmus may be present. The more water caloric tests may show diminished or absent vestibular response in one or both ear. Dramamine is indicated for frequent attacks.

12 Postictal headache, ictal headaches:

Though most headaches associated with seizures are postictal headaches, ictal headaches, where headaches are the actual manifestation of seizures, do occur and may be the sole clinical expression of seizure foci in the limbic system and other parts of the cortex (Swaiman and Yizehak, 1978). The confusion with migraine is that the majority of these cases are accompanied by nausea and vomiting, followed by lethargy or sleep. The main differentiation is that they are short in duration and the E.E.Gs are more apparent from acceptable epileptiform abnormalities.

13 The periodic syndrome

This is a descriptive term for an intermittent illness affecting children who, between episodes, are well. The symptoms are several and of varying intensity. It includes pyrexia, headache, vomiting and abdominal pain. Some symptoms may persist as vomiting and migraine in adult life.

Emotional factors are considered to be the precipitating factors. The symptoms of periodic syndrome could result from loss of autonomic control (Josephine, 1976).

14 Lumbar puncture headache

After lumbar puncture, an epidural C.S.F. leakage caused by delayed closure of a dural defect leads to a decrease in C.S.F. pressure, the resultant venous dilation as well as downward shift of the brain with traction on pain sensitive blood vessels and nerves frequently evokes post lumbar puncture, headache, when the patient assumes the upright position. To accelerate the closure of the dural defect and prevent post lumbar puncture headache, the patient must lie down in a prone position with head tilted down at an angle of 10 degrees for 30 minutes immediately after lumbar puncture (Dieterich and Brandt, 1985).

15 Complicated migraine syndromes

This syndrome is seen more commonly in children and adolescents than in adults. They are essentially focal neurologic expressions of the vasoconstrictive phase of pathophysiology resulting from regional ischaemia or edema. Headache is either not prominent or completely absent. (Lapkin et al., 1978).

Assesment of child with headache

1. Headache questionnaire.
2. Physical examination.
3. Investigations.
4. Treatment.

1. Headache questionnaire:

1. Which statement describes the frequency of headache?
 - once a day.
 - more than once a day.
 - once weekly.
 - once monthly.
 - once every two to three months.
 - fewer than every two to three months.

2. Place a check by statement that best describes the pain level of typical headache?
 - No headache.
 - Headache, but can be easily ignored.
 - Headache which cannot be ignored, but does not interfere with every day activities.
 - Headache which cannot be ignored, interfering with concentration.
 - Headache which cannot be ignored, interfering all task.
 - Headache which cannot be ignored and bed rest is required.

3. Which symptoms accompany headache ?
 - Dizziness.
 - Vomiting.

- Loss of appetite.
 - Nausea.
 - Vision problems.
 - Mood changes.
4. Do any relatives have severe or recurring headache ?
- Mother.
 - Father.
 - Brother or sister.
 - Grand parents.
5. Questions that their answers must be one of the followings :
- Always, very often, often, uncertain, seldom, very seldom, never.
- Does headache begin on the side of the head?
 - During headache on both sides of the head, is the pain greater on one side than the other?
 - Do noise and light make headache worse?
 - Does headache throb?
 - Does the pain change from one side of the head to the other ?
 - Do you get very depressed during headache?

- Do your arms and legs get cold during headache?
- Do your eyes moisten, itch or burn during headache?
- Do you have stomach pains during headache?
- Do you lose your appetite during headache?
- Is the pain on both sides of the head?
- Does the pain increase when you move your head?
- Do you wake up with a headache?
- Does your headache awaken you at night?
- Does your headache get better when you lie down?
- Does headache occur in the morning and get worse later in the day?
- Is your headache associated with changes in the weather?
- Are your headaches caused by tension or stress?
- Does your headache interfere with daily activities?

(Adapted with permission from Leonard G. Hudzinski, Ph.D., Ochsner Clinic, New Orleans).

2. Physical examination :

After the history has been taken, the next logical step toward the correct diagnosis will be examination of the patient.

General physical examination

The general physical examination is frequently helpful in diagnosing headache as the vital signs may give a clue to the underlying cause.

Fever, for example may be the only indication of an infective diseases as meningitis and encephalitis.

Blood pressure must be measured even in youngs to help in the diagnosis of hypertension and hypertensive diseases (pheochromocytoma).

Height and weight should be plotted on a chart, if significantly below average, the possibility of a hypothalamic neoplasm exists.

Examination of skin frequently yields useful information to detect any abnormalities such as petechiae, striae or cofé-au-lait spots.

Each organ system should be examined, keeping in mind their possible relationship to the pathogenesis of headache.

Ear, Nose and Throat

Examination of the ear, nose and throat should be made and checked by an otolaryngologist. Nasal abnormalities, sinuses, nasal septum should be examined because lesion compressing upon the sphenopalatine ganglion will produce head pain. Also examination of the area of nasopharynx and adenoids for any tumour are also needed. Examination of the ear is essential in the process of diagnosing of headache, e.g. chronic suppurative otitis media, the pain produced by chronic suppurative otitis media may also be an indication of possible intracranial complications.

Eyes :

If the physician thinks that the headache may result from some refractory errors, the patient should consult an ophthalmologist for refractory examination.

Astigmatism, squint, myopia and hypermetropia are common causes of frontal headache which is precipitated by reading, watching television and excessive

school work. The presenting symptom of glaucoma is sever pain localised to one or both eyes.

Teeth :

Dental examination may reveal the cause of headache. Caries, abcesses, malocclusion and tempromandibular joint dys function cause frontal or temporal headaches.

... Neurological examination :

In some headache cases, a neurological examination may be required, specially when all previous examination are negative.

All cases thought to be psychogenic should be neurologically examined no headache should be colled a psychogenic headache untill all forms of pathology have been ruled out.

Before making neurologic examination of the patient, a rapid check of the patient may reveal a number of important points. Some abnormal attitudes may be discovered or abnormal postures, deformities may be noted. The condition of the muscular system should be observed.

Measurement of head circumference is important. If significantly enlarged, hydrocephalus is diagnosed. If less than normal the possibility of microcephaly and its underlying pathological conditions should be taken into consideration.

The gait of the patient should be observed in every case, the examiner should look for any spasticity or unsteadiness. If the gait is abnormal in any way, the patient should be observed carefully to detect its origin whether organic or hysteric gait which has no definite characteristic and it is non descriptive.

Coordination should be observed in order to detect any tremors and also must report location, rate, amplitude and rhythm of tremors.

Reflexes (both deep and superficial) should be checked in all cases, normally all of the reflexes can be elicited and are equal on both sides. If these reflexes are naturally hypoactive or hyperactive, they should be equally on both sides when these reflexes are unequal, they become significant to some pathologic disturbances.

Special examination of the cranial nerves may be included. Examination of the optic nerves includes visual acuity, field of vision and fundus examination. The fundus examination is important if there is any suspicion of intracranial involvement causing headache, which includes optic nerve disc, retina, blood vessels. Papilloedema denotes increased intracranial pressure. Optic atrophy suggests a chronically increased intracranial pressure or a lesion in the area of the optic chiasma. Liability to move the eyes in a lateral direction may be due to a sixth nerve palsy and increased intracranial tension.

Lower cranial nerves abnormalities indicate a posterior fossa lesion.

... Psychiatric examination including :

General behavior: appearance, attitude to hospitals and doctors, activity eating, sleeping, restlessness, stereotypy, cataplexy-negativism (opposition and resistance to what is suggested).

Talk: form, rate (slow or fast) much or little.

Mood : happiness (euphoria, elation), sadness irritability-fear-anxiety, agitation.

Thought process: think clearly, flight of ideas, slow thinking, perseveration, circumstantiality incoherence.

Content of thought: problems and preoccupations.

Obsessional phenomena: Ideas, impulses, rituals ruminations.

Delusions : Grandiose, persecutory, guilt, hypochondriasis.

Illusion and hallucination : auditory, visual, olfactory, gustatory or tactile.

Orientation: name, identity, place, time date, other persons.

Memory : recent and remote events.

Attention and concentration : easily distracted, preoccupied, good or poor or mild concentration.

General information: Tests according to the patient's experience and education. mind.

Intelligence: Estimate from history and general knowledge.

Insight and judgment: Attitude to person state

regarded as an illness?

in need of treatment?

plans for future.

Attitude to any financial, domestic or ethical

problems presents.

3. Investigations

After a complete history and physical examination are done and still the diagnosis is vague, further investigations must be utilised to reach approximate etiology of headache.

A. Radiography :

1. Skull x-ray

Skull x-ray may show abnormal features in association with neurologic disorders, sinuses and dental pathology and also head trauma (fracture, hematoma). It is also indicated in the following cases :

- Brain lesions : to detect congenital anomalies, hydrocephalus, bony defects, skull tumour, brain calcification, gliomas, brain abscess.
- Paranasal sinus inflammation is diagnosed by clouding of the sinus, mucosal thickening and air fluid level.
- Dental disorders as abscesses, malocclusion and temporomandibular joint dysfunction.

2. Cervical spine x-ray

These may be helpful in diagnosing of upper cervical lesions, such as "the Arnold Chiari malformation",

where there may be associated cervical vertebral anomalies. Evidence of inflammation may be seen in juvenile rheumatoid arthritis.

3. Chest x-ray

It is useful for detection any abnormalities e.g. tumours, septic foci or any related lesions.

B. Computerized axial tomography (CAT scan)

Computed tomography is potentially the single most valuable test in the evaluation of a child with headache (Rothner, 1979).

This is the most reliable test for scanning for brain tumours, though it may miss early infiltrating isodense tumour or early meningeal neoplastic infiltrations. CAT scanning with contrast material in particular is a good scanning instrument for vascular malformations. Brain tissue is clearly distinguishable from cerebro-spinal fluid filled spaces, the technique is therefore suitable for demonstration of the ventricular size, displacements of the ventricular system, mass lesions and subdural collection of the fluid.

C. Electroencepholography E.E.G

E.E.G can be helpful in the diagnosis of headaches in certain situations. E.E.G provides a useful information inorganic diseases of the brain, its value in diagnosis of epilepsy. E.E.G is necessary in distinguishing confusional migraine from subclinical epileptic encephalopathy or non convulsive status epilepticus. Epilepsy, brain tumour, brain abscess, cerebral trauma, subdural hematoma, meningitis, encephalitis and congenital defects of the brain will cause changes in E.E.G. Serial recordings are helpful in distinguishing expanding vascular lesions and in following the clinical course after head injury, vascular and inflammatory brain lesions.

D. Angiography

1. Digital intravenous subtraction angiography (DISA):

DISA has proven diagnostic screening efficacy in adults with arterio venous malformations (Gradeur et al., 1983). Angiocatheter are usually inserted into an antecubital vein, although the femoral vein can also be used and attached to a pressure injector. In Gradeur's series, DISA was 100% diagnostic for arteriovenous malformation.

2. Cerebral angiography

It is useful in localisation of highly vascular tumour such as glioblastoma multiforme, meningioma, gliomas and metastatic tumours.

3. Veretebral angiography

It is useful in visualisation of vascular lesions in the posterior fossa.

4. Pneumoencepholography and ventriculography

In which, ventricular system and the subarachnoid spaces are outlined by displacement of cerebro spinal fluid with air or with oxygen. They are used occasionally especially for the diagnosis of lesions in the brain stem and in the paraseller region.

5. Renal angiography and adrenalangiography

It is useful for diagnosing of renal artery stenosis and pheochromocytoma.

6. Intravenous pyelography

It is helpful to diagnose congenital diseases (polycystic kidney), mass lesions and any related abnormalities.

E. Lumbar puncture

Lumbar puncture should be considered primarily if headache is due to central nervous infection (bacterial, viral, meningoencephalitis, encephalitis and meningitis. The protein of C.S.F. may be transiently elevated in migraine. Lumbar puncture should be preceded ordinarily by C.T. scan of the brain because of the danger of brain herniation.

F. Fundoscopy examination

It is required in cases of papillaedema, retinal exudates, retinal and preretinal hemorrhage, irregularities or nipping of retinal arteries and also give a comment on the caliber of retinal arterioles and its tortuosity.

G. Laboratory investigations

Complete urine and stool analysis must be done routinely in every case. Hb% is helpful in cases of anemia and hypotension. Another highly specific tests especially liver, kidney and respiratory function tests should be done if needed. Tests must be individualised depending on the clinical circumstances :

- Catecholamine assays : VMA in urine.
- Complete blood picture : leukaemia.

- Plasma urea and creatinine to detect renal excretory function.
- Electrolyte studies e.g. Na⁺, K⁺.
- Angiotensin and renin assay.

H. Electro cardiography

E.G.G. is useful to detect congenital heart diseases, valvular lesions, hypertrophy or heart failure and ischaemia and infarction.

I. Psychological test

I.Q, school rating, learning disabilities, and self control are indicated in case of psychogenic headache.

Management approaches

Management of headache in children and adolescents can be handled by the pediatrician or family practitioner. Referral to a pediatric neurologist is helpful. if there is doubt or a history of neurologic, cognitive, behavioral, or personality changes, focal neurologic signs or signs of increased intracranial pressure.

The Steps in management are :

- Reassurance.
- Patient or parent education.
- General non pharmacologic management.
- Pharmacologic treatment.
- Specific treatment.

Reassurance

The family should know that the headache is real, not imagined and is common in children.

If the patients have migraine or uncomplicated muscle contraction headache, they should be reassured that there is no serious medical or neurologic disease and no further specialized diagnostic studies indicated, there is no diagnostic laboratory tests for migraine.

Family should know that migraine is a life long condition, no cures therefor can be promised, and the condition will not kill.

Patient or parent education

Parents should be made aware that the headache should not be used for secondary gain at home or school, a trap that some parents fall into especially if they tend to be overactive or the parents make their children more dependent on their self.

General non Pharmacologic management

There are general measures directly primarily toward avoiding triggers, health habits of sleep, exercise, diet, avoiding stresses and development of stress management strategies. If bright sun light triggers migraine in summer, dark glass is used. If birth control pills seem to be a trigger, some other forms of birth control might be suggested. If certain foods trigger headache, they should be avoided. Sometimes, exertion or exercise seems to be a trigger. So advice the children for excusing from physical education classes or athletic participation.

Pharmacologic treatment

Pharmacologic treatment is aimed to relief or prevention of pain. There are three approaches :

- a. Symptomatic treatment.
- b. Abortive therapy at the time of headache.
- c. Prophylactic therapy.

A. Symptomatic treatment

1. Salicylates

The most frequently used analgesics for relief of headache are salicylates. Its mechanism of action is to act subcortically, they block the synapses of spino thalamic tract in the thalamus and prevent transmission of painful stimuli to cortex. Some of them interfere with prostaglandins released at the site of inflammation which sensitize the receptors to pain chemical mediators. They have also antipyretic, anti inflammatory, anti rheumatic and uricosuric action. They can be taken as 30-60 mg/kg/24 hours in divided oral doses every 4-6 hours. Adverse reactions of salicylates are allergy, salicylism (Vertigo, tinnitus, dizziness, convulsion, mental confusion, sweating, thirst, nausea, vomiting, diarrhea, rapid pulse and respiratory rate), gastro intestinal troubles, disturbance of acid base balance and hypotension.

2. Acetaminophen (paracetamol)

It is widely used with a dose 30-40 mg/kg/24 hours in divided oral doses every 4 to 6 hours. In large doses, it produces reversible jaundice, but massive over doses produce hepatic necrosis through formation of a toxic metabolites (Lietman, 1983).

3. Codeine :

Codeine in the form of codeine phosphate or sulphate is effective in severe headaches in a dose 4 mg/kg/24 hours in divided oral doses every 4-6 hours, it may be given parentally. Its side effects may be respiratory depression, nausea, vomiting, constipation and addiction.

B. Abortive therapy

Abortive therapy is used when headache is not relieved by common analgesics. The common abortive medications used in migraine are the ergotamine derivatives delivered orally, sublingually, per-rectum or by inhalation. These preparations must be taken either during the aura or as soon as possible after the headache starts. It can be given

in dose of 1-2 mg, usual oral dose for children is 1 or 2 tablets at the beginning with maximum of 4 tablets taken a half a hour apart in any 24 hours period. Its side effects are vomiting, muscle cramps, peripheral tingling. The drug is contraindicated in patients with peripheral vascular diseases. In severe prolonged migraine, status migrainous, prednisone at 40 to 60 mg/ daily over a short period may provide relief.

c. Prophylactic therapy

Prophylactic therapy is indicated in severe headache which cause significant dysfunction in school or job. some authors prefer to leave children on medication through the school years and attempt weaning over the summer. Propranolol (Inderal) may be the most frequently used prophylactic medication for common vascular headache or migraine (Weber, 1972). It is a B-adrenergic blocking agent and may result in preservation of vascular tone in sensitive persons. It reduces glycogenolysis and glycolysis in the brain as well as the synthesis of vasoactive amines and consequently prevent vasodilatation. Its dose in preadolescents is 10 mg bid and in adolescents is

20 mg bid. It is contraindicated in bronchial asthma, myocardial insufficiency, peripheral vascular insufficiency, Raynaud's phenomenon and brady cardia.

Other drugs used for prophylactic treatment are phenobarbital, mephobarbital, phenytoin, methysergide maleate, cyproheptadine and amitriptyline.

There are recent reports that in adults, the new calcium channel blockers are effective in vascular headaches (Verapamil) (Meyer, 1983). Calcium antagonists may take two to eight weeks to provide relief.

Naproxen as well as fenoprofen are effective prophylactic, drugs which reduce both frequency and severity of attacks (Welch, 1985 and Ziegler, 1985).

Antidepressants have been long used to prevent migraine headache (Couch, 1976). Tricyclic agents such as amitriptyline (Amitril, Elavil, Endop), doxepin (Adapin, Sinequan) and protriptyline (Vivactil) are also useful.

Patient who fail to benefit from tricyclic antidepressants or are unable to tolerate the drugs may obtain relief by monoamine oxidase inhibitors (MAOIs) such as phenelzine (Nardil) or isocarboxazide (Marplan).

The serotonin antagonist cyproheptadine (per-iactine) is especially useful in children with migraine and is the first choice for children who have frequent attacks.

Specific management

The main non pharmacologic management approaches that have been applied in migraine and muscle contraction headache are those used in physio therapy, those are used by behaviourally oriented clinical psychologists and psychiatrists (relaxation, biofeedback and hypnosis) and those which are used by dynamically oriented psycho therapists.

Physical therapy approaches to symptomatic relief of muscle contraction headache, particularly if neck muscle spasm is palpated. It consists of application of local wet heat, sometimes alternating with cold, for at least 20 to 30 minutes.

An application of local ice packs is said to relieve cluster headaches by causing vasoconstriction in dilated vessels.

Oxygen inhalation to abort cluster headache do the same mechanisms.

Transcutaneous nerve stimulation (T.N.S) for chronic pain syndrome including face and neck pain may be used.

Immobilization of the neck with stiff collars is sometimes helpful in occipital neuralgia.

Behavioral therapy approaches includes non biofeed back and biofeed back techniques.

Biofeed back is a method by which the brain can be trained to take over some control of an automatic process which the brain does not inherently possess.

Simply, biofeed back is a method of teaching a person to control a previously unused or involuntary controlled function of the body through the use of instrumentation. Most frequently it is used to control autonomic nervous system and thus functions such as heart beat, blood pressure blood flow and motor nervous system. Some patients obtain good control of

their migraine using only biofeed back, others require drugs and biofeed back (Ryan, 1978).

Specific management of psychogenic headaches

Appropriate analysis of psychogenic patients may help them to take corrective steps that would improve their life style and reduce headaches.

Individual insight-oriented therapy by personal discussion (changing or influencing ideas or emotions and exploration of mental conflicts and stresses) is done.

Establishment of an emotional relationship with the patient is helpful.

Biofeed back technique is also indicated.

Hypnosis and emotional self control may be indicated.

Psychotropic drugs can be used :

- Antidepressant : C.N.S stimulants (Ritalin, amphetamine), monoamine oxidase inhibitor (MAOIs) such as (Nardil, Marplan 30-60 mg/day. or parnate 30-60 mg/day.

- Tricyclic antidepressants as
Tofranil 75-200 mg/day,

Noveril 240-720 mg/day,
Tryptizol 75-200 mg/day,
Anafranil 75-200 mg/day, and
Insidon.

Antidepressants may cause hypotension, tachycardia, insomnia, restlessness, nightmares, ataxia, dry mouth, blurred vision and blood dyscrasias.

Benzodiazepine is effective in patient where anxiety predominates. Diazepam (Valium : 0.2-0.3 mg/kg/day in divided doses every 6 hours is used, the dose must be adjusted according to response. Confusion and prolonged extreme drowsiness may follow overdose.

CHAPTER III

DISCUSSION

Evaluation of headache:

The first step in proper diagnosis and effective treatment is to take a complete history and to collect as much data about headache as possible.

There are some questions which may help the practitioner to determine the etiology of headache:

- Do you have one of headache or more than one?
- How did your headaches begin?
- How long have you had it?
- Are they worsening or staying the same?
- How frequently do they occur?
- How long do they last?
- Do they occur under any special circumstances or at any special time?
- Are they preceded by warning symptoms?
- Where are they located?
- How would you describe the pain?
- Do you have other symptoms during headache, such as nausea, vomiting, sleepiness, weakness, balance problems or visual disturbances?
- Do you stop what you are doing during headache?
- Has your personality changed?
- Do you have any other chronic medical problems such as asthma.?

- Does any particular medication make the headache better?
- Does any particular activity make the headache worse?
- Are you taking any medication on a regular basis?
- Does any one else in your family have headaches?

An organic disorder must be sought if the patient has ;

- An isolated instance of severe headache.
- Localised head pain.
- Pain severe enough to disturb sleep.
- Headaches associated with straining.
- Headaches associated with neurological symptoms or signs.
- A change in an established headache pattern.

A chronic underlying medical conditions such as congenital heart disease or chronic pulmonary disease, also may be a causative factor.

The result of generalised physical examination are normal in most patients with long standing headache, whether acute recurrent (migraine) or non

progressive (muscle contraction). Blood pressure must be checked in all children because hypertension is not uncommon. Cafe-au-lait spots may diagnose neurofibromatosis which may cause hypertension or intracranial tumour. The cranium should be measured to detect enlargement due to hydrocephalus and auscultated for the presence of bruits may indicate an arterio-venous malformation. The patient's behaviour and affect may be the key to diagnose and underlying emotional disorders and also psychogenic headache. Neurological examination is made in an attempt to determine the integrity of the C.N.S and to localize any abnormality. Epileptiform discharges of E.E.G occur in 9% of migrainous children but should not alter the approach to treatment (Kinast et al., 1982)

Primary vascular headaches include classic and common migraine, hemiplegic migraine, ophthalmoplegic migraine and cluster headache. Common to all of these is a tendency toward vasodilation which represents the headache phase of migraine attack. Vasocanstriction may also occur and may be responsible for painless sensory phenomena occurring prior to the onset of head pain.

Toxic vascular headache is evoked by systemic vasodilation and may be produced by fever, alcohol, carbon dioxide, and a variety of medications and chemicals (Sodium nitrite, theophylline, bronchodilators and antihypertensive drugs).

Headache of recent onset should be evaluated initially for an organic cause and after suspect psychogenic or primary vascular.

Headache occurring with fever, nuchal rigidity neurologic deficit or papilledema are obviously of organic origin especially neurological ones.

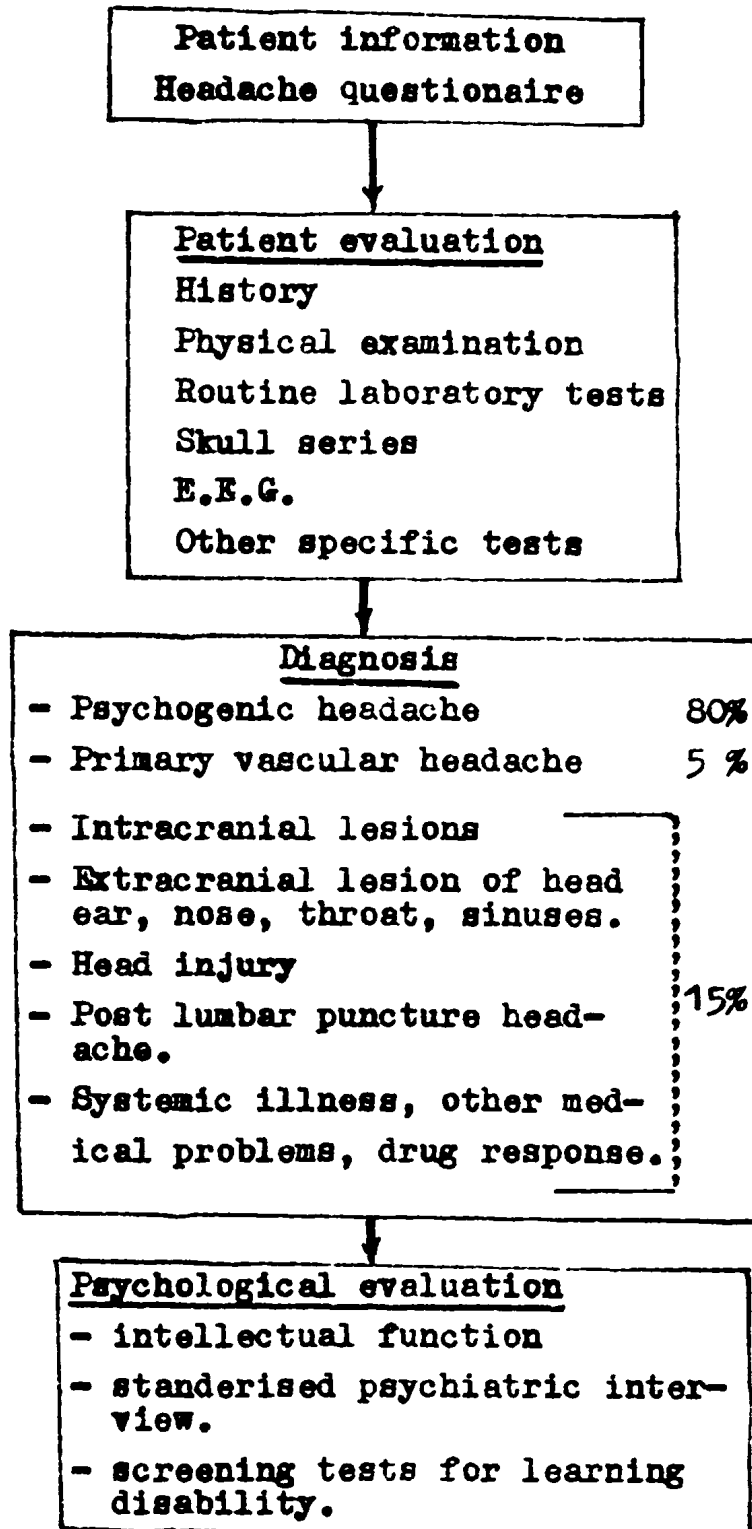
Headaches that disappear shortly after the patient awakens and become progressively prolonged and severe with time may be an early symptoms of increased intracranial pressure or certain forms of psychiatric illness.

Headaches that are persistently lateral should be investigated for a possible organic cause.

Headaches related to sleep disturbance, chronic fatigue, mood changes, increased irritability or

melancholia, are often psychogenic. Psychogenic headaches ingestion, smoking but relaxation, running, swimming, and atheltic sports provide aftently a refied from psychogenic headache.

Designation a flow chart of headache protocol as follow :



Interpretation of symptoms :

Temporal profile

- The frequency of headaches did not vary with age, seasonal variation was not prominent in any age group. Headache seemed to be shorter in younger patients (Bille, 1981).

- Severe headache of sudden onset, particularly if it is followed by impairment of consciousness or focal neurological signs, suggests a serious condition such as hemorrhage or meningitis.

- Headache resulting entirely from hypertension is usually present on awaking.

- Space occupying lesions and migraine may cause headache early in the morning.

- Cluster headaches are frequently awakening patient up from a sound sleep at night.

- Headaches associated with frontal sinusitis may commence early in the morning, those due to maxillary sinusitis usually commence at afternoon.

Laterality

- If headache is unilateral, it will be usually muscle contraction headaches or common migraine. Migraine tends to vary from side to side with different attacks and is commonly anterior. It is unilateral in two third of the patients and bilateral in the other third.
- In classic migraine, headache remains unilateral throughout.
- When the headache is consistently unilateral, the condition would point to the suspicious of focal space occupying lesion.
- Alternating laterality would be more supportive of classic migraine.
- If the headache is bilateral, it may be migraine.

Location

- Common migraine is across the forehead or is bifrontal.
- Classic migraine is usually fronto temporal.
- Muscle contraction headaches are either bifrontal, at the vertex or bioccipital.

- Occipital headaches should also call to mind upper neck problems, occipital neuralgia or basilar migraine.
- Retro-orbital pain occurs in cluster headache syndrome, and in optic or retro bulbar neuritis.
- Intracranial lesions in the posterior fossa initially produce pain in the occipital nuchal region, whereas supratentorial lesions produce pain in the frontal, temporal and parietal region.
- In the absence of papilledema, if the headache is one sided, the side of headache is the of lesion.
- The headache of space occupying lesions becomes bilateral if cerebrospinal fluid pressure increases, but it may be unilateral earlier in their course.
- Diseases of the paranasal sinuses, teeth, eyes upper cervical vertebrae will produce not only sharply localised pain but also referring pain over another related region.

Duration

- Migraine and muscle contraction headaches are measured in hours and sometimes days.
- Cluster headaches are usually brief averaging 20 to 30 minutes at a time.

- Neuralgias are brief, shooting pain lasting seconds.
- The duration of psychogenic headache is most likely indifinit, it may be short or long.

Pain character

- Children in young age (7-10 years) have the most difficulty to describe their pain.
- Intensity of the headache pain is not a reliable indication of seriousness of the underlying cause.
- An extremely severe headache of sudden onset must always give rise to the suspicion of a subarachnoid hemorrhage.
- Headahce upon awakening, it not due to increased intracranial pressure or hypertension are most commonly due to migraine. Migraine is classically described as throbbing or pulsatile and muscle contraction headache is a steady or band like ache.
- Headahce that awakes patients up from sound sleep at night is most commonly cluster headaches but rarely migraine or serious C.N.S diseases.

- A pulsatile throbbing headache is of vascular origin whether due to vaso dilation or migraine or hypertension or fever.
- Headache associated with brain tumour is usually of a steady aching quality and tends to be intermittent early in the course of the disease.

Auras and prodromes

Children younger than 13 years age are less likely than older to feel "down in the dumps", irritable, frustrated or angry just before a headache.

Post headache phenomena

After headache stage is ended, young children are more likely than adolescents and adults to feel "great" and less likely to feel exhausted or relieved.

Concomitant features

- The concurrence of seizures and migraine in the same person should make the physician suspicious of underlying arterio-venous malformation.
- A past history of syncope can be supportive of migraine (Gascon, 1981).

- If muscle contraction headaches are persistent and refractory to ordinary analgesics, a psychogenic factor must be considered.
- The presence of nausea and vomiting with headache almost refer to migraine when there are no other symptoms suggestive of increased intracranial pressure.
- Neurological deficits usually accompany a headache due to intracranial lesions.
- Headaches is a common symptom with carcinomatosis of the meninges and may be the presenting symptom for several months before mental and other symptom develop.
- Any vascular disturbance accompanying headache whether caused by fever or intracranial tumour, will be aggravated by jarring, sudden movement of the head, coughing, sneezing or straining at stool.
- In cases of sinusitis, it is quite common to observe that there are painful areas which are tender to pressure.
- Approximately 70 to 90% of children complaining

of headache have family history of migraine by age of 15 years.

- A past history of motion sickness is highly associated with migraine (Barabas et al., 1983).
- If severe constant pain is described but the patient does not appear in distress, the patient presents a conversion reaction.
- Decreased vigor, appetite disturbance or sleep disturbance with early morning awakening with headache suggest depression.
- Petechiae may indicate a blood dyscrasia with hemorrhage into the central nervous system.
- Striae may indicate cushing's disease.
- Five or more cafe-au-lait spots suggest neurofibromatosis and a central nervous system neoplasm.

Differential diagnosis of headaches in children and adolescents

A. Vascular disorders

(1) Migraine

- Common.
- Classic.
- Complicated migraine syndromes:
 - a. Basilar artery migraine.
 - b. Confusional migraine.
 - c. Hemiplegic migraine.
 - d. Ophthalmoplegic migraine.
 - e. Alice-in-Wonderland syndrome.
 - f. Status migrainus.
- Post traumatic
 - a. Visual loss.
 - b. Confusional syndrome.
 - c. Common migraine.
- Migraine variants
 - a. Cyclic vomiting in infancy.
 - b. Benign paroxysmal vertigo.
 - c. Abdominal migraine.

(2) Cluster headaches (Histamine Cephalgia, Horton's headache).

- a. Classic cluster syndrome.
- b. Chronic cluster syndrome.

B. Paroxysmal disorders

1. Headaches associated with seizures
 - a. Ictal headaches.
 - b. Post ictal headaches.
2. Muscle contraction headaches
3. Common Tension headaches.
4. Psychogenic
 - a. Depression
 - b. School phobia
 - c. Conversion syndrome or symptom
 - d. Prolonged postconcussion syndrome.
5. Occipital neuralgia.

C. Symptomatic headaches

1. Hypoglycemia.
2. Dental problems.
3. Sinusitis.
4. Eye strain.
5. Neck problems and cervical spine.
6. Temporomandibular joint syndrome.
7. Mass lesion, brain tumour, abscess, chronic subdural hematoma.
8. Arterio-venous malformation.
9. Aneurysm.
- 10 Hydrocephalus.

- 11 Pseudo tumour cerebri.
- 12 Trigeminal neuralgia.
- 13 Meningeal leukemia.

D. Rare periodic syndromes

1. Benign paroxysmal torticollis.
2. Acute intermittent ataxia.
3. Intra abdominal disorders e.g. lead colic.
4. Acute intermittent porphyria.
 - Ornithine transcarbamylase deficiency
 - Urea cycle defects.
 - Pyruvate carboxylase deficiency.
 - Hartnup's disease.
 - Intermittent variant of maple syrup disease.

CHAPTER IV

SUMMARY AND CONCLUSION

SUMMARY AND CONCLUSION

Headache is a common chronic and recurrent symptom in children. Recurrent head pain is common frequently a benign symptom in late childhood, it is unusual and more often indicative of serious underlying diseases especially in the young children.

Headache is one of the most important symptoms for the human being since a long time. Headache is an indicative for the presence of underlying illness, so it is necessary for the physician to do his best for early detection of the etiology of headache and management.

The physician must know the basic physiology and mechanism of the headache in order to know their etiology. This occurs by taking complete history and careful clinical examination and choosing the specific investigations required for each case.

Studies and researches were done in the field of headache in children and their conclusions were that more than 15% of school children reported headache occurring weekly. The commonest causes are fear of failure and school problems.

The commonest type of head in children in the psychogenic headache that represents about 80% of all causes of children's headache, but migraine occurs in about 5% of causes and 15% is for organic diseases.

Headache may be intracranial or extracranial. Intracranial headache are most often produced by traction, displacement of arteries or inflammation of pain sensitive structures (large arteries, veins, venous sinuses and certain cranial nerves). This form of headache is evoked by intracranial mass (tumours abscess, aneurysm), brain edema, meningitis and other infections. It may result from distention and dilation of intracranial arteries associated with systemic conditions (fever, infections, hypoxia, hypertension and metabolic disorders).

Diseases of the extracranial structures that may give rise to headache include glaucoma, error of refraction, ructures (involvement of the ligaments, muscles and cranial nerve roots).

Migraine headache is related to vaso dilation in the external caretid arteries system. It is in

the form of recurrent, throbbing, usually unilateral headache.

Tension headache refers to a bilateral, frequently non throbbing, headache associated with emotional disorders and may be precipitated by stressful situation in the child's environment.

The history is the most important determinant in arriving to correct diagnosis. Questions must be directed to both parents and child, about full description of illness and the headache attacks as regard onset, frequency, time, duration, character, intensity, location, triggering factors, prodromes and associated nasal, aphthamic, gastr intestinal or neurological disorders.

Psychogenic headaches are the most common types of headache in children and adolescents. Problems related to school, family strife, competition, deterioration in school performance, loss of interest, irritability and emotional instability are common in children. Manifestation of this type of headache includes mood change, with drowal, poor school performance, sleep disturbance, aggressive behavior, lack of energy, somatic complaints, school phobia

and weight loss. To be sure that the head pain is purely psychogenic, all physical causes must be ruled out and excluded.

Headache with acute febrile illness in children is usually generalised, bilateral pain that may be throbbing or non throbbing. Ear and mastoid infections frequently produce unilateral severe head pain.

Localised frontal head pain, either unilateral or bilateral suggests frontal sinusitis, with maxillary sinusitis, pain over the cheek is common.

Meningitis and encephalitis are usually associated with generalised headache, Pain from a brain abscess or subdural hematoma or empyema may be unilateral or bilateral.

Cyclic vomiting is the dominant feature of migraine in children. In girls, the onset of migraine frequently coincides with the onset of menstruation. Attack frequently begin in the morning and may awake the child from sleep. The attack is usually unilateral, varies from an hour to several days. Nausea, vomiting and photophobia are common.

General physical examination is greatly helpful in diagnosis a case of headache as infection, anaemia, leukaemia, hypertension and endocrine diseases.

Examination of ear, nose and throat should be done. If anything is found to be significant it should be rechecked by an otolaryngologist.

Examination of eyes by the help of an ophthalmologist may be needed to rule out myopia, hypermetropia, astigmatism and other causes of headaches.

In some headache cases, neurological examination may be required, especially when all previous examinations have been negative.

Psychiatric examination must be done if there is no apparent organic causes in order to reach to exact etiology of headache.

In children with headache associated with systemic diseases, the investigations indicated are those related to the primary diseases. When there is a suspected neurologic disorders, skull x-ray, lumbar puncture, E. E.G, computerized axial tomography and angiography may be indicated.

If psychogenic headache is suspected, psychological evaluation is indicated by intellectual evaluation, standerized psychiatric interview and screening tests for learning disabilities.

The treatment of systemic diseases and neurologic disorders associated with headache is related to the therapy of primary disorder. Analgesic drugs are of greast volue to alleviate the pain of headache.

Acetyl salicylic acid in a dose of 5-10mg/kg may be repeated at 3 to 4 hours intervals is taken. With severe prolonged headache not relieved by solicy lates, codeine in a dose of 1 mg/kg may be prescribed.

Treatment of headache of psychological origin occurs by prevention of all stressful situation which face the child, individual insight oriented therapy, emotional self control, biofeed back , hyponosis and psychotropic drugs.

The treatment of migraine is directed toward the prevention and the control of the attack as well as symptomatic treatment.

Prevention of recurrent attacks include elimination of the factors which have a role in precipitating or provoking an attack, such as home or school stress, exposure to glare, ingestion of foods containing tyramine (Cheeze), phenylethylamine (chocolate) and certain drugs.

Control of an acute attack is by analgesics, sedatives and antianxiety drugs. The specific therapy for attack is ergotamine tartarate which can be taken by all routes.

In between the attacks, psychotherapy and pharmacological therapy are essential. Among the drugs commonly used are : methysergide (Sansert), cyproheptadine (Periactine), propranolol (Inderal), pizotifen (mosegor), barbiturate and tricyclic antidepressants.

For symptomatic treatment, rest in quiete dark room, antiemetics and sedatives are essential measures.

Recommendations

1. We recommend to use headache questionnaire in pediatric hospitals, pediatric treatment centres, and private clinic in order to help the clinician to reach a correct diagnosis and exact etiology.

role of psychological state
 lache, we have to stress on
 per social and psychological
 The surrounding environment
 ched and satis factory to
 nce and attitudes consequently
 ee of any frustrations which
 y cause headache in children.
 nesses and any one who has
 of the child, must know his
 bringing up. Also, it is
 important to get medical consultation and investigate
 the psychological state of the child and his different
 environmental satisfactions in cases of 1ry headache
 or recurrent headaches.

3. We recommend the teacher and every one who deals with children in school, must pay great attention to the psychological state of the child. The role of the

school must not be forgotten as the child spends most of his day in school. The schoolers must put in their considerations the importance of the mental, physical and individual variations among children; by putting the proper child in his proper place. They must not ask the children to do things above their capabilities whether mental or physical which lead to recurrent frustrations and as a result of that the child will become isolated, negativistic, introverted, and learning of trauncy.

4. We must not forget the importance of the regular medical examination at regular intervals in order to discover early the acute and chronic illnesses. Also regular stool and urine analysis as parasitic infestations such as Bilhariziasis, Ascariasis lead to anaemia which in turn lead to headache in children.

Finally, we can safely say that this role cannot be achieved by only one person but a co-operation between members of the team work in order to achieve a proper bringing up and a child free of troubles and frustration.

CHAPTER V

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CHAPTER VI

ARABIC SUMMARY

الطبيب العيسى

أن الصداع عرض شائع ومتكرر عند الاطفال وهو غالباً ما يكون مؤشراً ودليلاً الى وجود مرض عضى وطى الأخص فى الاطفال صغيرى السن .

الصداع من الاعراض ذات أهمية خاصة للانسان منذ زمن بعيد ولذلك يجب على الطبيب الأخصائى ان يبذل قصارى جهده فى الاكتشاف المبكر للصداع واسبابه وكيفية التخطيط السليم لمعالجه . وناطى ذلك يجب على الطبيب ان يعرف كل الاساسيات الفسيولوجية والميكانيكية للصداع وهذا بتسجيل كامل للتاريخ المرضى للحالة وأيضا فحص طبي دقيق واختيار مناسب للتحاليل والفحوص المعملية .

أجريت دراسات وابحاث عديدة لمعرفة اسباب الصداع هذا وقد بينت النتائج ان حوالى ١٥% من اطفال المدارس يعانون من الصداع على الأقل مرة واحدة اسبوعياً وكان من اشهر الاسباب التى تؤدى الى ذلك هو الخوف من الفصل الدراسى فضلا عن مشاكل المدرسة الأخرى وقد اوضحت احدى الدراسات ان اكثر انواع الصداع حدوا عند الاطفال هو الصداع النفسى والذى يشكل ٨٠% من جملة الحالات لعينة البحث . أما الصداع النصفى فقد شكل ٥% من العينة فقط وسما يشير الدهشة ان الاسباب العضوية كانت مسئلة عن النسبة الباقية وهى ١٥% .

هذا وتنقسم أسباب الصداع الى اسباب خارج الجمجمة واسباب داخلها فالاسباب داخل الجمجمة تنتج غالبا من شذو أو ازاحة الشرايين داخل الجمجمة او التهابات فى المناطق الحساسة . وقد يأتي هذا النوع من الصداع نتيجة تمدد أو اتساع الشرايين داخل الجمجمة أما الاسباب خارج الجمجمة المسببة للصداع فهى كثيرة أهمها الاضطرابات الناتجة عن متاعب العينين (الجلوكوما) او الانسف والاذن والحنجرة او التهابات عضلات واعصاب الرقبة او التهابات عظام الجمجمة أما الصداع النصفى فيحدث نتيجة لتمدد الشريان السباتى ويظهر فى صورة آلم متكررة

على فترات متقطعة عادة ما يكون في جانب واحد من الرأس . أما الصداع الناتج عن التوتر فهو عادة ما يكون على جانبي الرأس ودائما ما يختلف في نهيته عن الصداع النصفي وهذا الالم دائما ما يكون مصاحبا للتوتر والاضطرابات الانفعالية التي تزيد كلما زاد التوتر في بيئة الطفل المحيطة .

يتمتد تاريخ المرض من اهم الوسائل في الوصول الى التشخيص السليم لحالات الصداع عند الاطفال . وان الاسئلة يجب ان توجه الى كل من الوالدين والطفل على حد سواء للحصول على وصف كامل دقيق للصداع ونمواته وذلك من يد المرض ، وكراره ، واستمراريته ، وقت حدوثه ومدته ، وخصائصه ، وشدته ، ومكانه وكذلك العوامل التي تساعد على زيادة حدة الصداع والاعراض المصاحبة سواء قبل او اثنا او بعد الصداع .

بعد الصداع النفسي من اهم الانواع وأشهرها في الاطفال والمراهقين وان المشاكل التي ترجع الى المدرسة او المنزل او المناقشة بين الاطفال بعضها البعض او التأخر في التحصيل الدراسي . وفقدان الاهتمام والدافع لدى الطفل تؤثر بطريقة مباشرة او غير مباشرة في حدوث الصداع النفسي . ومن المضاعفات التي تنتج عن هذه المشاكل اضطرابات المزاج والانطوائية وعدم القدرة على التحصيل الدراسي وكذلك اضطرابات النوم والسلوك العدواني والخوف من المدرسة وقصان الزمن .

بينما ألم الصداع الناتج عن الحصى يكون عادة في الرأس كلها او على جانبي الرأس وان التهابات في عظام الاذن تسبب الالم في جانب واحد من الرأس . اما التهابات الجيوب الانفية فعادة ما يكون الالم في المكان التشريحي للجيوب الانفية المصابة .

الصداع النصفي عادة ما يكون مصاحب للنفس في الاطفال وفي البنات يكون هذا الصداع متوافق مع بداية حدوث الدورة الشهرية عند البلوغ وان الالم يكون باستمرار

في الصباح وأحيانا يحفظ المريض من النوم .

الفحص العام الاكلينيكي للمريض يساعد على تشخيص الصداع في حالات العدوى والالتهابات والانيميا وسرطان الدم ، وارتفاع ضغط الدم ، وأمراض الغدد الصماء .
فحص الانف والحنجرة والاذن وكذلك فحص العين وأيضا قاع العين وفحص الجهاز العصبي يجب ان يتم من طريق الطبيب الاخصائي اذا لزم الأمر . وأيضا الفحوص النفسية والمصبية يجب ان يتم بدقة وناية للوصول الى التشخيص والسبب الرئيسي للصداع النفسى .

والفحوص المعملية يتم اختيارها بناءً على التشخيص التمايزى وهذا بالقطع يعتمد على التاريخ المرضى للحالة وأيضا الفحص الاكلينيكي . فاذا كان السبب له علاقة بالجهاز العصبي فيجب على الطبيب ان يجرى الاختبارات الاتية منها أشعة اكس ، الأشعة المقطعية بالكمبيوتر ، بزل النخاع ، صور بالأشعة بالصبغة للارودة التى تساعد في النهاية على التشخيص السليم .

وإذا وجد ان الصداع له علاقة بالحالة النفسية للمريض فيجب اجراء تقييم كامل لذكاء الطفل وقدراته العقلية وأيضا معرفة قدراته على التعلم .

علاج الصداع اولا يجب ان يوجه اساسا لعلاج السبب الرئيسي والباشر لحدوث الصداع . المسكنات لها قيمة عظيمة في ازالة الالم ومنها الاسبرين فى جرعة من ٥ الى ١٠ مجم /كجم مقسمة كل ٣ - ٤ ساعات حسب الاحتياج . اما الألم الشديد فيمكن اعطاء مركب كودايين بجرعة ١ مجم / كجم .

أما علاج الصداع النفسى فيتم بمنع كل الضغوط النفسية التى يتعرض لها الطفل سواء ان كانت فى البيت او المدرسة وأيضا المنومات والمعاقير النفسية يكسب استخدامها فى بعض الحالات .

وهناك الصداع النصفي فيدر في ثلاث محاور وهي منع حدوث النوبة ، والسيطرة عليها و علاج الاعراض المصاحبة . ومن العقاقير الشائعة الاستعمال هي مركبات الأرجوت العديدة .

التقييم

١ - نوصي باستخدام امتحان الصداع في مستشفيات ومراكز علاج الاطفال وايضا العيادات الخاصة وقد ترجم الى اللغة العربية لكي يساعد الطبيب الممارس وسهل مهمته في الوصول الى السبب الرئيسي والتشخيص السليم للصداع .

(١) بأي اسلوب يمكن ان توصف مرات حدوث الصداع .

- هل هومرة في اليوم .
- هل هو اكثر من مرة في اليوم .
- هل هومرة في الاسبوع .
- هل هومرة كل شهر .
- هل هومرة كل شهرين او اكثر .
- هل هومرة او اكثر كل شهرين .

(٢) ضع علامة على الجملة التي تعطينا وصفا دقيقا لمستوى ألم الصداع

لديك .

- لا يوجد صداع
- يوجد صداع لكن يمكن تجاهله .
- يوجد صداع ولا يمكن تجاهله ولكن لا يؤثر على نشاطاتك اليومية .
- يوجد صداع ولا يمكن تجاهله ولكن يؤثر على مدى تركيزك .
- يوجد صداع ولا يمكن تجاهله ويحتاج ضروري الى الراحة .

(٣) أى الأعراض تصاحب حدوث الصداع .

- الدوخة - الغثيان - مشاكل فى الرؤية والعيون
- فقدان الشهية - القىء - تغيرات فى المزاج .

(٤) هل لديك اقارب يعانون من الصداع الحاد أو المتكرر .

- والدك - والدتك
- الأشقاء - اقارب آخريين .

(٥) ضع اقرب اجابة من الاجابات الاتية على الاسئلة التى توجه اليك

- دائما - غالبا جدا - غالبا
- ليس بالتأكيد - نادرا
- نادرا جدا - لا

- هل الصداع يبدأ فى حدوثه على جانبي الرأس ؟
- اثناء الصداع على جانبي الرأس هل الألم وشده اكثر من جانب من الآخر ؟
- هل الأصوات والاضاءة تجعل الصداع اكثر شدة .
- هل ألم الصداع ينبص ؟
- هل الألم ينتقل من جانب الرأس الى آخر ؟
- هل تتناوب حالة اكتئاب مع الصداع ؟
- هل اطرافك تصاب بالبرودة والتنميل اثناء الصداع ؟
- هل عنيك تصاب بالحرقان او الهرش اثناء الصداع ؟
- هل تصاب او تعاني من ألم فى المعدة مع الصداع ؟
- هل تفقد شهيتك اثناء الصداع ؟
- هل الألم يكون على جانبي الرأس ؟
- هل تشعر بالألم وكأنه مشدوداً وحكم الشد حول الرأس ؟

- هل الألم يزيد عندما تحرك الرأس ؟
- هل تصح ويهيا بالصداع ؟
- هل ألم الصداع يوقظك فجأة أثناء الليل ؟
- هل ألم الصداع يتحسن عند الاسترخاء ؟
- هل يبدأ في الصباح الألم ثم يزداد سوءاً أثناء اليوم ؟
- هل الصداع له علاقة بتغيرات الطقس ؟
- هل الصداع يتأثر بالتوتر والضغط العصبي ؟
- هل الصداع يؤثر على نشاطاتك اليومية ؟

ب - نظراً لما يلعبه الدور النفسى فى أحداث الصداع فإنه يتحتم الإشارة الى أهمية التنشئة الاجتماعية والنفسية السليمة للطفل بحيث تكون بيئته بيئة مشجعة تحقق له ذاته وتشجع ميوله فينمو الطفل دون أى عقبات نفسية أو إحباطات متكررة قد تؤثر بطريقة مباشرة أو غير مباشرة نفسى حدوث الصداع لدى الطفل ومن هنا ينبغي على الوالدين والمربين وكل من له دور فى التنشئة ان يعرف دوره فى ذلك وأيضا فانه مسن الضرورى عليهم فى حالة حدوث الصداع لاول مرة او تكراره عرض الطفل على الطبيب وأيضا بحث حالته النفسية وأشباعاته البيئية المختلفة .

ح - هذا ونوصى المدرسين وكل من يتعامل مع الطفل فى المدرسة ضرورة مراعاة نفسية الطفل حيث ان دور المدرسة لا ينبغي ان يفصله فالطفل يقضى فى مدرسته فترة ليست بالقصيرة من يومه وينبغي على ادارة المدرسة مراعاة الفرق بين الاطفال بعضهم البعض وذلك بوضع الطفل المناسب فى المكان المناسب وعدم اجهاد الطفل بطلبات اكثر من امكاناتهم سواء العقلية او الجسمية ما تسبب للطفل إحباطات متكررة تؤدى الى انزوائه او الى الانسواء او السلبيات وأيضا

الهروب من المدرسة •

د - ولانسى اهمية الفحص الطبي الدقيق للطفل من وقت لآخر بصورة منتظمة حيث ان الامراض المزمنة تسبب ايضا الصداع وكذلك فحص عينيه من انبيل او البراز للاطفال بصورة متكررة منتظمة حيث ان الامراض المتوطنة مثل البلهارسيا والاسكارس تسبب الانيميا والتي بدورها تؤدي الى حدوث الصداع لدى الاطفال •

وخلاصة القول ان هذا الدم لا يمكن ان تلعبه جبهة دون الاخذ برى بل ينبغي ان تتماقر الجهود وتحدد لتنشئة الطفل نشأة سليمة خالية من المتاعب •

مكتبة
معهد الدراسات العليا للطفولة
رقم تصنيف:
رقم قيد/
شماره:

جامعة عين شمس
معهد الدراسات العليا للطفولة
قسم الدراسات الطبية

المصداق لدى الأطفال

رسالة

مقدمة من الباحثة

الطبيب / ادوارد فاخر القس لوقسا

تمهيدا للحصول على درجة الماجستير في
دراسات الطفولة " قسم الدراسات الطبية "

اشراف

الاستاذ الدكتور / ضيفى حسين
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