

**CHILD NEUROLOGY SOCIETY OF NIGERIA (CNSN)  
8<sup>TH</sup> ANNUAL SCIENTIFIC SESSION, JANUARY 27 – 28, 2021**

**THEME**

**PRACTICE OF NEUROLOGY IN NIGERIA; MEETING NATIONAL NEED AND GLOBAL STANDARD NOW AND IN THE FUTURE**

**SUB-THEME**

**MODERN CONCEPT OF MANAGEMENT OF CHILDHOOD NEUROLOGICAL DISORDERS – Professor Alhassan M. Yakubu**

**Protocols**

I am highly honoured to be invited to give a key note address at this conference. Having pondered on the major theme and sub-theme I came to the conclusion that both themes have a common denominator namely: Childhood Neurological Disorders; Current Practices and Future Challenges.

The National need and Global standard as it applies to child welfare is captured by the United Nation Article 24 on RIGHT OF THE CHILD which states inter alia:

“State parties recognise the right of the child to enjoyment of the highest attainable standard of health and facilities for treatment of illness and rehabilitation of health”

The OAU Charter on the Rights of the Child states:

“Every child shall have the right to enjoy the best attainable state of PHYSICAL, MENTAL and SPIRITUAL HEALTH”

Towards the end of the 20<sup>th</sup> century few records on childhood neurological disorders showed that epilepsy topped the list of disorders of children presenting at the Paediatric Neurology Clinics. This was closely followed by cerebral palsy.

The prevalence of cerebrovascular stroke associated with homozygous sickle cell anaemia reported global prevalence of 2.9 to 16.9%. While Nigeria show prevalence range from 2.9% - 8.6%

### **Neurological Practice in the New Normal**

The theme of this scientific session must have taken a hard futuristic look focusing the GLOBAL NEW NORMAL imposed by covid-19 Pandemic the mother of all pandemic so far. Historically there had been several pandemic predating the medieval times often referred to as plagues.

#### **Biblical Records:**

In Exodus chapters 7 through 11, ten (10) plagues were inflicted upon the Egyptians before the Israelites were freed from captivity. The Apocalypse or the Book of Revelation 16 mentioned of “God’s wrath being poured on earth by Angels”. Some of the poured wrath by the Angels seemed to be infectious in nature.

“SO FIRST ANGEL WENT AND Poured OUT His bowl on earth and HARMFUL AND PAINFUL SORES CAME UPON THE PEOPLE” These plaques were given religious interpretations as DIVINE PUNISHMENT” for sins.

The Quran contain similar accounts of plaques (Surat Al-A’raf v.133)

Some of the early pandemic between 430 BC and 19<sup>th</sup> century were:

1. Plague of Athens which killed several troops in Athens, Rome
2. Antonine plague 161 – 180 A.D. estimated death 5m
3. Plaque of Cyprus 252 – 256 A. D. 500,000/day
4. Plaque of Justman (Bubonic 541 – 750) death /day 75m death
5. Black death 14<sup>th</sup> century worldwide

## 6. Third pandemic plaque (19<sup>th</sup> century) 10m death

Smallpox in India (1518 – 1838) before it was eradicated recorded 5 different episodes. Cholera on the other hand was recorded as 8 pandemic between 1817 and 1966.

1918 – 1920 recorded a global pandemic of “Spanish Flu”.

None of these pandemics seemed to have decimated humanity like the Corona Virus (covid-19) pandemic which as at May, 2020 affected 187 countries which has impacted gravely on many spheres of human life namely: health, security, economics, education and social life globally without end in sight. World Community is adopting to these challenges as GLOBAL NEW NORMAL.

### **Covid-19 and Neurological Disorders:**

Evidence so far indicates that covid-19 has greatly contributed to acute neurological syndromes, defined as disorders which involve the brain, spinal cord, nerve roots, cranial nerves, peripheral nerves, neuromuscular function, muscles and autonomic nervous systems with the following complex clinical presentations:

- Fever
- Drowsiness
- Confusion
- Convulsion
- Depression
- Nausea and vomiting
- Altered mental state
- Diarrhoea

### **Causes of Acute Neurological Syndromes:**

1. Stroke

2. Infection
3. Intracranial haemorrhages
4. Trauma in the neck and head
5. Drowning/Near drowning
6. Toxic metabolic imbalances
7. Autoimmune disease
8. Multiple sclerosis
9. Hydrocephalus – complications of shunts
10. Sickle cell disease including Moyamoya Syndrome.

1. **STROKE:**

Arterial ischaemic stroke is the major cause of stroke. The following differential diagnosis must be excluded as these mimic stroke. These are:

- Hypoglycaemia
- Hemiplegic migraine
- Acute disseminated encephalitis

**Risk Factors in Arterial Ischaemia:**

- Cardiac anomalies
- Head and neck injury
- Genetic disorders
- Vascular malformation
- Sickle cell disease

2. **INFECTIONS**

Bacterial infection of the CNS can produce brain abscess in the parenchyma. This behaves as a space occupying lesions

Viral infections can have the following neurologic syndrome:

- (a) Aseptic meningitis typically with mumps

- . Acute flaccid paralysis in poliovirus
- . Encephalitis involving gray matter with rabies
- . Post infectious encephalomyelitis involving both gray and white matter disease e.g. Gullain-Barre syndrome. The infecting agent is hardly isolated during the acute illness.

### Covid-19 and Acute Neurological Syndromes:

Clinical symptoms are due to vascular activities such as acute arterial ischemia causing haemorrhage in the brain parenchyma or subdural space. Second mechanism is believed to be thrombotic phenomenon. These are responsible for personality changes inclusive of behavioural changes.

Direct viral inflammation of the brain is responsible for encephalitis with inflammatory evidence of 5 cells or more in the cerebrospinal fluid and protein level in the csf of greater than 0.45g/dl. Microscopic lesion in the brain show diffuse inflammatory changes.

Seizure is associated with electroencephalographic changes associated with neuropsychiatric syndrome such as mania, anxiety and catatonia.

Involvement of peripheral nerves causes syndromes of Gullain-Barre Syndrome and myositis due to inflammation of peripheral nerves.

### 3. **INTRACRANIAL HAEMORRHAGE:**

Intracranial haemorrhage responsible for causing acute neurologic syndrome may occur spontaneously causing aneurysm or due to cavernous and arteriovenous malformations. Arteriovenous fistula may be associated with aneurysm. Secondary causes of intracranial bleeding include brain tumours, head and neck injury and SICKLE CELL DISEASE

## **TRAUMA**

Birth trauma can produce permanent irreversible damage. Child abuse may be a cause of brain injury. Head and neck trauma may be associated with subdural haematoma.

### **4. DROWNING AND NEAR DROWNING:**

Anoxia may cause injury in the basal ganglia, cerebal cortex and hippocampi with irreversible damage.

### **5. TOXIC METABOLIC IMBALANCES:**

These are seen as complication of diabetes mellitus type 1. Children with diabetic ketoacidosis often develop cerebal oedema and brain herniation and compression. Neonatal hypoglycaemia can cause severe brain injury

### **6. AUTOIMMUNE DISEASE:**

This rare phenomenon has been reported in children usually following acute respiratory infection. Symptoms include seizure, coma and behavioural disturbances. Brain pathology reveal poorly demarcated hyperintense lesions involving gray and white matter.

### **7. MULTIPLE SCLEROSIS:**

This progressive icliopatic inflammatory disorder has received wide attention in the recent literature. Typically it involves the brain, spinal cord and peripheral nerves. Symptoms are impaired speech, blurred vision, poor muscle coordination.

### **8. HYDROCEPHALLUS:**

Acute neurological complications usually associated with complications of shunts, raised intracranial pressure due to subdural haematoma. Symptom include: headache with signs of meningism.

## 9. SICKLE CELL DISEASE

Acute neurological complications in sickle cell disease are:

- Silent cerebral ischemia
- Ischaemic haemorrhagic stroke
- Posterior reversible encephalopathy syndrome
- Cerebral fat embolism
- Cerebral venous sinus thrombosis
- Moyamoya syndrome – A (progressive cerebrovascular disorder caused by blocking of arteries in the basal ganglia. Presentation: seizure, visual disturbances.

## INVESTIGATIONS AND MANAGEMENT

21<sup>st</sup> century management of neurological disorders must take cognisance of the Global New Normal imposed by the covid-19 pandemic. Imaging, MRI scan to offer fertile ground for diagnosis.

Covid-19 infection must be recognised as an additional cause of acute neurological syndromes in childhood.

It is a pleasure to have your audience.

Professor Alhassan M. Yakubu

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