



# Pan African Association of Neurological Sciences

20<sup>TH</sup> CONGRESS & 40<sup>TH</sup> ANNIVERSARY, DECEMBER 3-4, 2012, NAIROBI, KENYA



## REPORT OF THE LOCAL ORGANISING COMMITTEE

### Members:

Prof NJM Mwang'ombe. (Chairman) Dr. C K Musau,  
Dr. J G Kiboi, Dr. H Wanga, Dr. Chacha Magabe,  
Dr. F Odhiambo, Dr.M Okemwa, Dr. N Kitazi.  
Dr. Ahmed Kalebi, Dr. P Lubanga

The committee would like to express their appreciation to all the delegates who attended the 20<sup>th</sup> PAANS Congress and 40<sup>th</sup> anniversary at the Methodist Guest House from 3<sup>rd</sup> to 4<sup>th</sup> December 2012. The committee embarked on the big challenge of hosting the Congress sometime in August this year. The time available was short and this created a major drawback with potential donors who had already committed their annual budgets to other events. We managed to get a positive response from three local companies namely Sophysa (intracranial pressure monitors), Covidien (interventional neuroradiology), China Health (spine instrumentation) and Lords Health Care (multiple drug products). The committee settled for Methodist Guest House because of its reasonably priced facilities and serene location. The meeting was well attended by delegates from all over Africa as shown from the names listed above. The meeting opened with opening remarks given by Prof Gilbert Dechambenoit (incoming President), Prof M Dumas, Prof Adelola Adeloye and Prof Raad Shakir. The main theme from these comments was to remind the delegates of the significant achievements attained by PAANS in its forty years of existence and the need to look into how to build on those achievements and rectify any shortcomings that may be hindering its progress. The theme of the Congress was "Cerebrovascular disease, Dementia and Neuroepidemiology in Africa". The papers in the Scientific Program reflected the theme of the Congress as displayed below. A total of 31 papers were presented and the scientific abstracts are as shown below. The PAANS business meeting was held on day one of the congress after presentation of the scientific papers. On day two of the Congress certificate of attendance was presented by the PAANS President to each of the delegates at the end of the meeting followed by a farewell dinner at the Pumula restaurant.

## SCIENTIFIC PROGRAMME

THEME “Cerebrovascular Disease, Dementia, Neuroepidemiology in Africa”

### Day 1: December 3

7.00-8.00: Arrival/Registration

8.00-8.30: Opening ceremony/Remarks: Prof A Adeloye & Prof M Dumas

Session I: Cerebrovascular Disease-I

Moderators: C K Musau/J Kiboi/Raad Shakir

8.45-9.15: Epidemiology, Natural History and Pathophysiology of Atherosclerotic Occlusive Disease. Dr. Minda Okemwa (Kenya)

9.15-9.45: Clinical Management of Occlusive Cerebrovascular Disease. Prof Yomi Ogun (Nigeria)

9.45-10.15: Epidemiology, Natural History and Pathophysiology of Non-atherosclerotic Occlusive Disease. Dr. Ahmed Kalebi

10.15-10.45: Clinical Management of Thrombo-embolic Cerebrovascular Disease. Prof Yomi Ogun

10.45-11.00: Tea/Coffee Break

Session 2: Cerebrovascular Disease-II:

Moderators: Kalala /Alkali/Raad Shakir

11.00-11.30: Challenges with Difficult Intracranial Aneurysms. Prof Azevado Hildo (Brazil)

11.30-12.00: Indications for Neuroimaging in patients with SAH. Dr Alfred Odhiambo

12.00-12.30: Management of Ruptured Aneurysms. Dr. C Musau (Kenya)

12.30-13.00: Language and Cognitive Disturbances after aneurysmal SAH. Prof Azevado Hildo

13.00-14.00: Lunch

Session 3: Cerebrovascular Disease-III

Moderators: Sonan T /Gallo A

14.00-14.30: Survival of non-comatous Stroke Patients admitted at the Department of Neurology, Fann National and Teaching Hospital, Dakar-Senegal. Dr. Toure Kamadore (Senegal)

14.30-15.00: Stroke at the National Hospital, Abuja, Nigeria. Nura H Alkali

15.00-15.30: Dural arteriovenous fistulas. Prof Kalala (DRC/ Belgium)

15.30-16.00: Neurointervention: History, Indications, Embolization Materials, Endovascular Devices and Equipments. Dr. M Chacha

16.00-16.30: Anaesthesia, Vascular access and anticoagulants in Neurointervention. Dr. Wanga

The Role of Interventional Surgery in Africa

16.30-17.00: Coffee/Tea Break

17.00-18.00 PAANS Business

18.30-22.00 Free evening

### Day 2: December 4

Session 4: Neuroepidemiology. Dementia. I

Moderators: M Guerchert/Kitazi / Mansour N

8.30-9.00: Normal Pressure Hydrocephalus. Azevadoh-Hildoh

9.00-9.30: Neuroepidemiology of Dementia in Africa. Prof Dumas (France)

9.30-10.00: Neuroepidemiology of Multiple Sclerosis in Africa. Prof Gouider (Tunisia)

10.00-10.30: Neuroepidemiology of Peripheral Neuropathies in Africa. Prof Sonan (Ivory Coast)

10.30-11.00: Tea/Coffee Break

Session 5: Neuroepidemiology. Dementia. II

Moderators: M Guerchert /Salim /Raad Shakir

11.00-11.20: Young-onset of Dementia at the Department of Neurology, Fann Teaching Hospital, Dakar-Senegal. Dr Talmoudi Safwan

11.20-11.40: Neuroepidemiology of Head Injuries in Kenya. Dr S Shitsama

11.40-12.00: High Social Network is associated with low occurrence of Dementia in a Senegalese elderly Population. Toure Kamadore

12.00-12.20: Trends in Epidemiological Data from 1999-2009 in Abidjan, Ivory Coast. Dr. A E Kouame-Assouan

12.20-12.40: Neuroepidemiology of Brain Tumours in Kenya. Dr P Kitunguu

12.40-14.00: LUNCH

Session 6: Neuroepidemiology. Dementia. III

Moderators: M Gouerchert/ Shakir / Gouider

14.00-14.20: Neuroepidemiology of Spinal Schistosomiasis in Sudan. Dr A D Salim

14.20-14.40: Neuroepidemiology of Spina Bifida Cystica in Kenya. Dr G Njiru

14.40-15.00: Experience with Spinal Tumours in National Center of Neurological Sciences, Sudan. Dr A D Salim

15.00-15.20: Spina Bifida in Sudan. Case report and Literature Review. Dr A D Salim

15.30-16.00: Coffee/Tea

Session 7:

Moderators: N J Mwang'ombe/ Hildo Azevedoh

16.00-16.15: Patient Safety. The check list effect: a neurosurgical approach. Prof G Dechambenoit (Ivory Coast/France)

Easy to Miss Diagnosis. Dr. Waweru Munyu, Dr. Nelly Kitazi

16.15-16.30: The Role Intracranial Pressure Monitoring in the Management of Head Injuries in Africa. Dr M Magoha

16.30-16.45: Prevention of dural fistulas in elective surgeries: the role of lumbar drains and dura seals. Dr D O Olunya

16.45-17.00: Closing Remarks/Certificate Presentation

18.00: Farewell Dinner

## **SCIENTIFIC ABSTRACTS**

### **Epidemiology of Peripheral Neuropathies in Africa**

Sonan Thérèse

Key words: Africa, epidemiology, peripheral neuropathies, care

Summary

The aim of this study is to give an overview of the peripheral neuropathies in African countries based on a literature review of epidemiological data.

Using various keyword combinations, we searched Medline (PubMed) and AJNS (African Journal of Neurology the PAANS' journal) databases to obtain data such as frequency, mortality rates, seasonal variations, sociodemographic levels, epidemiological specificities, endemic focuses, aetiological factors, socio-cultural approaches, part of the traditional therapy.

Furthermore, the study raises the question of the management and care of peripheral neuropathies in the continent, taking into account appropriate equipment, (EMG, nerve biopsy), number of neurophysiologists and accessibility to drugs.

Some of the future challenges may be to improve the equipment, to create on the continent a pole for the training of neurophysiologists and to consider doing multicentric research's studies.

### **Epidemiology of Dementia in Africa**

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In collaboration with:

in Benin: Pr Dismand Houinato (Neurology CHU), Dr Moussiliou Noël Paraïso (IRSP Ouidah)

in RCA: Dr Pascal Mbelesso (Neurology) and Pr André Tabo (Psychiatry, CNHU)

in Congo: Dr Bébène Ndamba-Bandzouzi (Neurology) and Dr Alain Mouanga (Psychiatry, CHU)

Considering the population ageing worldwide, dementia constitutes a major public health concern in developed countries where the rates of this condition are as high as 5-20% after the age of 65. In developing countries, the rates are actually lower, evaluated between 1 and 5%, perhaps because of biases of selection, or influence of environmental factors. Influence of genetic factors is actually difficult to evaluate. With the demographic transition, ageing is going faster in low and middle-income countries than in high income countries, and the proportion of elderly over 65 years will double in those countries during the 20 next years. So, developing countries are probably going to be affected by the same issue, since African elderly population will dramatically increase by 2025.

The 10/66 Dementia Research Group has coordinated a multicenter study in developing countries. More data are available in Asia, Latin America and India concerning prevalence, risk factors, mortality and burden of the disease. However, few studies have been carried out in Africa. Dementia has been well documented in Nigeria, on account of the Indianapolis/Ibadan Dementia Project (IIDP).

Our research group carried out in 2007 a survey in general population, by a door-to-door screening in a rural area of Benin. We conducted also another cross-sectional community-based study in Cotonou (Benin) which found a prevalence of dementia of 3.7% (95%CI [2.6-4.8]). These studies afforded us to prove the feasibility of our approach and the complementarities of our consortium in this domain.

Then, further researches were focused on two Central African countries: Central African Republic and Republic of Congo. General population door-to-door surveys were conducted in districts of Bangui (Republic of Central Africa) and Brazzaville (Congo) in elderly aged  $\geq 65$  years old. Subjects were screened with the Community Screening Interview for Dementia and the Five-Words Test. Diagnosis of

dementia was made according to the DSM-IV criteria and to the clinical criteria proposed by the NINCDS-ADRDA for AD. We enrolled 496 subjects in Bangui and 520 in Brazzaville. Prevalence of dementia was estimated at 8.1% (95%CI=[5.8-10.8]) in Bangui and 6.7% (95%CI=[4.7-9.2]) in Brazzaville. Increasing age, female gender, hypertension, a BMI <18.5 kg/m<sup>2</sup>, depressive symptoms and the lack of a primary education were significantly associated with dementia. Among life events, the death of one parent during childhood and recently having moved house were also associated with dementia. Stigma and sociocultural representations of dementia have also been investigated in those populations. Aging was the main cause of dementia identified by relatives of demented people, and the social support was important. Actually, our research group is coordinating a larger program in these two countries (Epidemiology of dementia in Central Africa, EPIDEMCA, funded by the French National Research Agency). The rationale of this project is to estimate prevalence of dementia, related syndromes, and cognitive disorders, in both rural and urban areas, to evaluate their risk factors, and to determine if genetic variations can modify the risk of dementia in African populations.

### **Dural Arteriovenous Fistulas**

Jean-Pierre Kalala Okito

Dural arteriovenous fistulas (DAVFs) are a pathological dural-based shunt constituting a potentially source of bleeding with sometimes devastating neurological consequences. Symptoms and diagnose of this condition will be reviewed. CT and MR imaging are helpful in the diagnosis, but conventional angiography remains the most accurate method for complete characterization and classification of DAVFs. The classification of the DAVFs help to choose the type of treatment. The Borden and Cognard classifications underline the correlation between bleeding risk and venous drainage pattern. The treatment options of this condition are based on conservative approach, endovascular or neurosurgical techniques. Sometimes endovascular and neurosurgical approach are combined. Radiosurgery may be considered for benign DAVFs. Some cases will be discussed at the end to illustrate this condition.

### **Stroke at The National Hospital Abuja, Nigeria: a Prospective Study of 272 Patients**

Nura H. Alkali, MBBS, MSc, FMCP

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Background: There are no studies of stroke verified by neuroimaging among Nigerians. We aimed to study stroke risk factors, subtypes and 30-day case-fatality among adults treated at the National Hospital Abuja, Nigeria.

Methods: Between January 2010 and June 2012, we assessed demographic, clinical and laboratory variables, as well as brain and carotid Doppler scans of all patients presenting with acute stroke. We also assessed outcomes at 30-days among in-patients and out-patients.

Results: We studied 272 patients, of whom 168 (61.8%) were males. Age at presentation (mean  $\pm$  standard deviation) was 56.4  $\pm$  12.7 years in males and 52.9  $\pm$  14.8 years in females ( $p = 0.039$ ). Neuroimaging was obtained in 96.7% patients, and revealed cerebral infarction (61.8%), intracerebral hemorrhage (34.8%) and subarachnoid hemorrhage (3.4%). Carotid atheromatous plaques or stenosis  $\geq 50\%$  were detected in 52.5% of patients with cerebral infarction. Common stroke risk factors included hypertension (82.7%),

diabetes (23.5%), hyperlipidemia (18.4%), atrial fibrillation (9.2%), cigarette smoking (7.7%) and HIV infection (3.3%). Prior to stroke, most patients had been unaware of a vascular risk factor, especially hypertension, hyperlipidemia and atrial fibrillation. At 30 days after stroke, overall case-fatality rate was 18.8%, while mean mRS scores for cerebral infarction, intracerebral hemorrhage and subarachnoid hemorrhage were 3.71, 4.11 and 4.56 respectively.

Conclusion: Stroke affects younger Nigerians than other Africans and Caucasians. Hypertension, diabetes and atrial fibrillation were important risk factors, but these were mostly detected after a stroke.

Improvements in primary health care, aggressive control of hypertension and appropriate anticoagulant therapy could help reduce stroke burden in Nigeria.

Keywords: stroke, hypertension, Nigeria, cerebral infarction, case-fatality

### **Spinal Schistosomiasis ? Medical or Surgical Treatment !**

Abubakr Darrag Salim .M.D, Mohamed Abdurrahman Arbab .M.D, Ph.D., Elhadi Bakheet Mohamed . M.D. , Ahmed Mohamed Elhassan.M.D.,Ph.D., Samira Mirgani M.D.

Abstract: Spinal schistosomiasis , an unusual form of schistosomiasis but an interesting type , this condition affect young individuals, producing characteristic clinical features consisting of low backache , lower extremities weakness and numbness , urinary incontinence and features of cauda equina lesion of recent onset.

Aims: To study the characteristics of Spinal schistosomiasis , clinical presentation , radiological , histopathological features and the methods used in treatment and their effectiveness .

Methods : The study was conducted at Alshaab and Ibn Khaldon hospitals in in the period from 1995 - 2009. All patients with diagnosis of spinal space occupying lesions whose histopathology revealed spinal schistosomiasis were included .

Results: Ten patients satisfied the study criteria . The age range was from 6- 42years , the mean age was 19.7 years .nine of the ten patients were males , one is a female .seven were students the rest 3 have other jobs.50% were from Algezera state , others are one from different states .The clinical picture was . Backache ,Lower Limbs hypothesia , Lower Limbs weakness and Urine incontinence . the symptoms duration ranged from two weeks to two months . Three patients were diagnosed by MRI which showed D 12 to L1 or L2 spinal cord swelling with hyper intense patches in T2 images , the remaining two patient were diagnosed by CT myelogram which showed D12 to L1 or L2 spinal cord intramedullary swelling . Nine patients were treated by D11 to L1 Laminectomy and spinal cord biopsy . one patient was treated by antibilharzial drugs .In surgically treated patients histopathology was schistosomal ovae surrounded by inflammatory cells and edema . All patient received Praziquantel and corticosteroids and all showed improvement .

Conclusions : 1-Spinal schistosomiasis has characteristic clinical , radiological , and histopathological features . 2- The condition produce severe neurological disability in young individuals . 3-There is no general agreement about the management of this condition , but we advise medical treatment trial if failed then surgical decompression and biopsy to confirm the condition followed by administration of Praziquantel and Corticosteroids.

## **Experience with Spinal Tumors in National Center of Neurological Sciences (NCNS)**

Abubakr Darrag Salim MD, Alhadi Bakheet Mohamed MD, Mohamed Abdelrahman Arbab MD, PhD , Basheir Mohamed Bashier MD, Mohamed Saad Ahmed MD , Sawsan Ahmed Hamid MD , Abdelrahman Ali Jameel MD

### **Abstract**

The spinal tumors present about 5-10 % from all skeletal neoplasm Primary intraspinal tumors comprise between 10 and 15% of all central nervous system tumors , they have higher incidence in young children , spinal tumors are associated with aggressive morbidity that may end with paraplegia

### **Aims of the study**

It is to show the experience of the national center of neurological sciences in Sudan in managing spinal tumors and the problems encountered during management of the patients .

### **Results**

The total number of patients was 324 , age range was 2- 82 years with mean age of 39.2 years , the sex distribution of the patients was 182 patients 56.2% were males while 142 43.8% were females , the main presenting symptoms were backache in 82% of the patients while limb pain was found in 28% , other symptoms were limb weakness in 91.5 % , sensory impairment in 84% and sphincteric disturbances in 43.3% of the patients , MRI was the main investigation in 85.2% , the tumors were at dorsal spine in 38.5% , in the cervical spine in 14.2% and in the lumbar spine in 10.8% of the patients .Histopathology result was present in 209 patients 64.5% and was missing in 35.5% Meningioma was the main tumor and found in 23.5% followed by schwannomas in 10.5% then neurofibroma in 5.2% , ependymoma in 3.4% , astrocytoma in 2.5% haemangioma in 2.2% and dermoid in 1.5% , on the other hand metastatic tumors were found only in 0.3% of the patients the final outcome was cure or improvement in 64% of the patients , while 13% remained static , 2.8 were deteriorated post-operative , 6.5 % died due to pulmonary embolism or respiratory failure , 13.6 % lost the follow up .The main complications encountered were urine incontinence in 9% , urine retention in 3.7% , urinary tract infections in 4.9% , constipation in 3.4% and wound infection in 3.4% of the patients

### **Discussion**

It is quite clear that the benign tumors in the spine constitute the majority of case while the malignant tumors are the minority representing about 6% of all cases . The final outcome of the surgical treatment in those patients was gratifying , 64% of the patients were either fully cured or improved while 13 % remained static , in the other hand 2.8% of the patients has been deteriorated neurological state and 6.5% has died following the treatment due to different causes . 13.8% of the patients has lost follow up .The complications associating spinal tumors were mostly related to sphincteric dysfunction specially the urinary function followed by urinary tract infection in mostly related to prolonged catheterization then wound dehiscence and infection there other rare complications .

### **Conclusions**

Spinal tumors are in most instances curable conditions that require attention in diagnosis and

treatment , They usually present with features of progressive myelopathy and diagnosis is made easy with aid of MRI , Benign tumors like meningiomas and schwannomas constitute the bulk of cases , and total excision can be achieved in most of the spinal tumor specially if microsurgical technique are used .

### **Case Report: Neglected myelomeningocele presented late in adulthood**

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Introduction:

The incidence of myelomeningocele cases is still high in Sudan. Myelomeningocele is a common birth defect that is associated with significant lower extremities deformities that causes significant lifelong morbidity. However the late presentation of a myelomeningocele case in 12 years age is very rare to our knowledge and no similar cases have been reported.

Case Description:

12 years old female a case of neglected sacral myelomeningocele associated with Chiari malformation presented with back swelling since birth and urine incontinence. The patient underwent myelomeningocele repair and release of the hanging nerve roots then the defect closed through the classic three layers closure. The patient recovered completely and regained her ability to control her urine immediately in the first postoperative day

Discussion:

The case illustrates that myelomeningocele alone is not a cause of mortality if not associated with other congenital anomalies like hydrocephalus for example. The urine incontinence in this patient seems to be caused by Chiari malformation rather than by the hanging lower nerve roots. The sacral myelomeningocele is not associated with lifelong morbidity especially if no associated congenital hydrocephalus.

### **Survival of non-comatous stroke patients admitted at the Department of Neurology, Fann National and Teaching Hospital, Dakar-Senegal**

Dr. Touré Kamadore

*Background.* Stroke is real public health priority worldwide and particularly in Africa. We conducted a study to estimate the lethality rate and identify the predictive factors associated with the survival of patients with stroke admitted at the Department of Neurology, Fann University Teaching Hospital, Dakar-Senegal.

*Methodology.* 170 non-comatous stroke patients were followed monthly from August 2003 to May 2005. Sociodemographic, medical history, clinical data were collected and the prognosis determined for all patients. Mortality and probability of survival were estimated using Kaplan Meier method. Multivariate analysis using a Cox regression model was used to identify predictive factors of survival.

*Results.* The patients had a mean age of the patients was 61 years  $\pm$  13. They were mostly female (59.4%), illiterate (75.29%), and living in the suburban (46.5%). Ischemic stroke represented 64.7%. The main risk factors for stroke were: hypertension (63.53%), obesity (26.47%), stroke (12.35%) and diabetes (11.76%). The probability of survival at 1 month, 3 months, 6 months and 12 months was respectively: 0.69



( $\pm 0.03$ ), 0.60 ( $\pm 0.03$ ), 0.56 ( $\pm 0.03$ ), 0.55 ( $\pm 0.03$ ). In the multivariate analysis, age > 60 years (HR: 2.01; 95% IC: 1.21-3.32), hemorrhagic stroke (HR: 2.52; 95% IC: 1.55-4.12), obesity (HR: 2.89; 95% IC: 1.75-4.79) and living in rural area (HR: 0.37; 95% IC: 0.17-0.80) were independently associated with stroke survival.

*Conclusion.* These results confirmed the high lethality of stroke at hospital and confirmed the role of predictive factors. It is necessary to focus on primary prevention of stroke in Senegal.

### **High social network is associated with low occurrence of dementia in a Senegalese Elderly population**

Toure Kamadore

*Background.* With the modernization of the Senegalese society, loneliness is becoming frequent among elderly increasing risk of dementia. The objective of this study was to assess the role of social network in the occurrence of dementia in a Senegalese elderly population of patients utilizing the Social and Health Center of IPRES, Dakar-Senegal.

*Methods.* A cross sectional study was conducted from 2004 to 2005 in 872 Senegalese elderly population of patients aged 55 years and over utilizing the Social and Health Center of IPRES, Dakar-Senegal for health care. Data on sociodemographic characteristics, lifestyles, social network and past medical and familial history were collected with a structured questionnaire completed with a clinical exam and neuropsychological testing. The role of social network on dementia was assessed through a logistic regression analysis controlling for sociodemographic, lifestyle, and past medical history variables.

*Results.* They had a mean age of 67.2 years ( $\pm 7.5$ ), were men (63%), married (79%), educated with high social network. Smoking and alcohol consumption were rare. Hypertension, arthritis, gastro-intestinal diseases, respiratory diseases and genito-urinary diseases were the main health conditions reported. Fifty eight subjects (6.67%) had dementia. High social network was associated with dementia: 4 weekly contacts with relatives: OR= 0.21 (95% CI: 0.08-0.55), 5 weekly contacts and over: OR= 0.07 (95% CI: 0.01-0.39) after controlling for other variables.

*Conclusion.* These results confirm the protective role of high social network in the occurrence of dementia.

*Keywords.* Dementia. Social network. Risk factors. Elderly population. Senegal

## **Young onset of dementia at the Department of Neurology, Fann Teaching Hospital, Dakar-Senegal.**

Talmoudi Safwan

*Objective.* To evaluate a Senegalese experience in young onset of dementia at the first Memory Clinic of Fann Teaching Hospital, Dakar-Senegal.

*Methodology.* From January 2004 to June 2011, a Memory Clinic was opened at the Department of Neurology, Fann Teaching Hospital, Dakar-Senegal to manage patients with memory disorders. Patients received at this clinic fulfilled a clinical and neuropsychological assessment with laboratory exams. Treatment was prescribed. In this present study, we considered only patients with dementia aged 60 years and less.

*Results.* In a population of 299 patients, dementia was diagnosed in 213 of them (70%). Young dementia occurred in 30 (10% of the total population and 14.15% of the demented patients). They were referred mainly by neurologist, psychiatrists and the family. They had a mean age of 56.1 years (45-60 years), were male (17 cases), married (73%), educated (83%) with a history of hypertension (66.67%), stroke (30%), diabetes (26.67%), alcohol-smoking (13.3%) and familial memory disorders (53%). Vascular dementia was the most prevalent (19 cases-63.3%) followed by AD (9 cases-30%) and brain tumor (2 cases-6.67%). Neuropsychological testing was performed with the Test of Senegal. Patients were prescribed vasodilator, ACE, Memantine, antihypertensive drug, antidiabetes, statin, AAS, antidepressant, anxiolytic and physiotherapy.

*Conclusion:* It is necessary to take into account this new epidemic in our daily neurological practices and to sensitize the community for primary prevention of vascular risk factors.

*Keywords.* Young dementia- Memory Clinic- Dementia- Senegal

## **Neuroepidemiology of Head Injuries in Kenya**

NJM Mwang'ombe, S V Shitsama

### **Summary**

Traumatic brain injury (TBI) not only has considerable morbidity and mortality but is a major cause of disability, epilepsy and dementia worldwide. In this review, results of studies conducted at the Kenyatta National Hospital, Nairobi, Kenya by the senior author between 1979 and 2009 are presented. These findings are discussed in two parts, those done between 1979 and 1985 (pre-CT scan period) and those done between 1999 and 2009 (CT scan period). The overall mortality in patients with TBI seen in the pre-CT scan period was 16% in adults and 1.4% in children. The male to female ratio was 7:1 in adults and 1.1:1 in children. Most of the TBI in adults in the pre-CT scan period were due to either road traffic accidents (46%) or assaults (40%), while a different pattern was observed in children, with falls from a height being most frequent (50%) followed closely by road traffic accidents (42%). In this group, the frequency of early seizures was 4% in adults and 8% in children. In the second study group of CT scan era TBI patients, the male to female ratio in patients with severe TBI (GCS 8 and below) was 8:1 while the overall mortality was 57% (60% of the patients dying within 48 hours of admission). In the earlier years in

this second study group (1992-1996), skull radiograph was the investigation of choice in patients with severe TBI (74%), CT scan of the head being done in only 24% of the patients, while in the later years (2009) CT scan of the head was done in all the patients with severe TBI. Brain oedema was the commonest CT scan finding in this second study group and 40% of the patients diagnosed with brain oedema had a poor outcome. Other factors associated with a poor outcome in this group were abnormal papillary reaction to light, hypotension (MAP < 70mmHg) and hypoglycaemia (blood glucose < 10mmol/l). In this paper, the Global perspective of neuroepidemiology of TBI in low and middle income countries of sub-Saharan Africa, its role as a major cause of death and disability and possible preventive measures, are discussed.

### **Neuroepidemiology of Brain Tumours Kenya. N J Mwang'ombe, PK Kitunguu.**

#### Summary.

Gliomas account for more than 70% of brain tumours. Gliomas are associated with some rare inherited tumour syndromes such as Li-Fraumeni, Turcoit, von Hippel-Lindau, Gardner and basal cell syndromes, multiple endocrine neoplasia type 1, tuberous sclerosis, neurofibromatosis 1 and 2. Gliomas have also been associated with environmental, occupational and life style factors. Irradiation has been confirmed to be a definite risk factor. Previous studies have reported lower brain tumour incidence among populations in Africa compared to Europeans. This may be related to under-diagnosis and under-reporting in Africa. Annual global age-standardized incidence of primary malignant brain tumours is approximately 4 per 100000 for males and 3 per 100000 for females. These rates are higher in developed countries (males 6 and females 4 per 100000) than in less developed countries (3 males and 2 females per 100000). While under diagnosis may account for lower incidence of brain tumour in developing countries, ethnic differences in susceptibility to development of brain tumours may also play a role. There are differences in the epidemiology of brain tumours in children compared to adults. Medulloblastoma and low grade glioma are the most common type of tumours in children compared to adults where high grade glioma and meningioma are the most common type of brain tumour. In this paper, the authors review the neuroepidemiology of brain tumours in Kenya by analyzing data obtained from previous studies by the senior author and his colleagues at the Kenyatta National Hospital, between 2000 and 2011. Data from 400 patients with brain tumours who underwent surgery is presented. A comparison is done with data from similar studies done elsewhere in Africa and the rest of the world.

### **Neuroepidemiology of Spina Bifida Cystica in Kenya. N J Mwang'ombe, S G Njiru**

#### Summary

65 patients with spina bifida cystica were treated at the Kenyatta National Hospital, Nairobi, Kenya between September 2011 and August 2012. The mean age at presentation was 9 days. There was a male preponderance with 40 (61.5%) males and 25 (38.5%) female. In the order of family ranking most of the patients (31, 47.7%) were first born in their respective families.

The average year at conception of the mother was 25.1 years with a range of 17-45 years. 55 (84.6%) of the mothers were married. Majority of these mothers had some elementary education with 41 (63.1%) of them having attained primary education and 12 (18.5%) of them having attended secondary school. Majority of the mothers (50, 76.9%) had income less than 10,000 per month. Only 3 (4.6%) having a monthly income in excess of Ksh. 40,000 per month. 3 (4.6) of the mothers partook of alcohol in the prenatal period. Only 2 (3.1%) were confirmed diabetic. One mother had taken anticonvulsants in the prenatal period. Of note only 12 (18%) expressed awareness of folic acid supplementation. Of these only 8 (12.3%) were actually supplemented. About 50(76.9%) of the mothers attended antenatal clinic. Majority of the mothers, 35 (53.8%), commenced their clinic attendance between the 4-6<sup>th</sup> months. 13(20%) of the mothers commenced the clinic attendance between the 1<sup>st</sup> – 3<sup>rd</sup> month. Majority of the mothers were found to have had a low haemoglobin of 11.1%. None of the mothers had alpha fetoproteins tested during pregnancy. Additionally only 12(18.5%) of the mothers had an antenatal obstetric ultrasound done. Of these only 4 (33%) were reported as abnormal. The infants had a mean birth weight of 3.1 kg and an average admission weight of 3.4 kg. The average head circumference on admission was 37.3cm. 27 (41.5%) of the patients had convex and tense anterior fontanelles. The most common sites for the lesion were Lumbar 18 (27.7%), lumbo-sacral 20 (30.8%), thoraco-lumbar 13 (20.0%), sacral 9 (13.8%) and thoracic with 5 (7.7%). 36(55.4%) had hip flexion representing a motor level of L3, 24 (36.9%) had knee flexion representing a motor level also L3. 4 (6.2%) had ankle dorsi-flexion representing a motor level at L5. 22 (33.8%) had knee extension, 26(40%) had hip extension and 3(4.6%) had ankle plantar flexion all representing a motor level at S1. 31 (47.7%) had complete skin cover whereas 33(50.8%) had incomplete skin cover. 7(10.8%) had a documented CSF leak. Evaluation of bladder function was done in all the patients, with a mean leak point pressure of 34 cm of water. The average post void residual volume was 19 cc of water. The average serum urea level was 2.2mmol/l. Common associated malformations were CTEV 42 patients (64.6%), hydrocephalus, 20 patients (30.8%), and 7 patients (10.8%) with kyphosis. The median age at surgery was 15 days. 39(60%) had spina bifida closure alone, 9 (13.8%) had SB closure then VP shunting. 9(13.8%) had spina bifida closure and vp shunting simultaneously. The median duration of surgery was 56 min. 23(21.5%) developed wound dehiscence, 12(11.2%) had features of wound necrosis while a further 12(11.2%) had concomitant wound infection. 5 (7.7%) developed a CSF leak and 4(6.2%) developed meningitis. 19(29.2%) developed hydrocephalus. 2(3.1%) developed shunt related complications. 31(47.7%) developed post operative fever. The cost burden to the family in terms of transport and care was in excess of ksh. 45,000 per patient over the 30 day period of follow up in a majority

of the cases. In this paper, these findings are compared with those of a study done at the same institution in 2004 by the senior author, and those from the rest of Africa. The challenges encountered in the management of this condition in sub-Saharan Africa is discussed.

### **The role of Intracranial Pressure (ICP) Monitoring in the Management of Severe Traumatic Brain Injuries (TBI) in SubSaharan Africa.**

N J Mwang'ombe, M A Magoha

#### Summary

Brain oedema is associated with poor outcome after TBI. ICP monitoring has become an established component of management of TBI in the developed world. There is considerable variability in the use of ICP monitoring and treatment modalities among head injury centers. However, there is a large body of clinical evidence supporting the use of ICP monitoring to guide therapeutic interventions.. This is a review the role of ICP monitoring in severe TBI in SubSaharan African countries; the cost-benefits and challenges.

### **Neurointervention: History, Indications, Embolization Materials, Endovascular Devices and Equipments. Dr. Magabe Chacha Peter**

#### Summary

From the first described percutaneous PTA of SFA in 1964 by Charles Dotter, peripheral interventional skills and equipment gradually evolved to neurointerventional procedures. Today a variety of equipments are available for various neurointerventional procedures which over time have been developed and perfected. Among the current indication for neuro interventional endovascular procedures include intracranial aneurysms,AVMS,AVFS,tumours ,epistaxis,stroke ,trigeminal neuralgia,vertebroplasty and carotid pathologies.

The specific indications, materials and equipments requirements are elucidated and discussed in detail.

### **Indications for Neuro-imaging in Patients with Subarachnoid Haemorrhage. Dr. A. Odhiambo**

#### Summary

Subarachnoid hemorrhage is a condition in which there is bleeding into the subarachnoid space around the brain and the spinal cord. The symptoms typically begin abruptly, occurring at night

in 30% of cases. The premier symptom is a sudden severe headache in up to 97% of affected individuals classically described as the “worst headache of my life”. There may be an associated brief loss of consciousness, seizures, nausea, vomiting and meningismus.

The most common causes of subarachnoid hemorrhage are head trauma and rupture of an intracranial aneurysm. Non traumatic subarachnoid hemorrhage arises in 80% of cases from rupture of a saccular aneurysm at the base of the brain. Most intracranial aneurysms occur at typical locations within or near the circle of Willis. The most common locations are the bifurcation of the middle cerebral artery and the anterior communicating artery.

Radiologic evaluation is essential for determining the treatment and prognosis of subarachnoid hemorrhage. Conventional angiography is regarded as the gold standard for the evaluation of patients with suspected subarachnoid hemorrhage. However major advances have been made in the application of non invasive vascular imaging modalities of CT angiography and MR angiography. At many institutions these imaging technologies may be used in addition to or even replace catheter angiography.

## **TRENDS IN EPIDEMIOLOGICAL DATA FROM 1999 TO 2009 IN ABIDJAN, COTE D’IVOIRE**

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### **BACKGROUND**

In high income countries, new imaging procedures and new management therapies have improved the prognosis. In sub-saharan Africa (SAA), epidemiological data concerning stroke are scarce and mostly issued from hospital-based studies. New diagnoses methods and management methods remain widespread.

We therefore performed this study to evaluate the trends in epidemiological data in our country over a period of ten years.

### **METHODS**

We compared data from two hospital-based studies in Abidjan. The first study included patients from most public and private hospitals implicated in stroke management, from June 1997 to may 1999. The second one concerned only the neurological unit of Cocody teaching hospital from January, 1st to December, 31, 2009.

### **RESULTS AND COMMENTS**

There were 835 patients in the first study and 189 in the second. Mean age was 58 years with a light male predominance in the two studies.

Risk factors were similar. High blood pressure remained the main one (72% in 99 and 73 % in 2009) followed by a history of stroke or transient ischemic attack (22%/16%).

There was a better realization rate of cerebral CT scanner (74%/2,1%), which can explain that the ischemic stroke rate was somewhat lower (64%/56%), while the rate of cerebral hematoma was higher (26%/37%).

The in-hospital fatality rate was remarkably stable (24.7%/24.9%) and similar to those in SAA, versus 10 to 16% in developed countries.

### **CONCLUSION**

This study confirms the need to improve the quality of care in SAA.

**Key words** : stroke, epidemiology, sub-saharan Africa