

Neurological Disease Burden in two Semi-urban Communities in South East Nigeria.

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SUMMARY

BACKGROUND: Neurological disorders are a significant cause of morbidity and mortality worldwide. Urban hospital -based studies give some perspectives on the burden of neurological disease but there are no community-based studies from South East Nigeria.

AIM: This study sought to screen for the scope and pattern of neurological dysfunction affecting inhabitants of two semi-urban communities in Enugu, South East Nigeria.

METHODS: A descriptive, cross-sectional, questionnaire-based study of inhabitants living in Alfred Camp and Udi Siding communities in Enugu was carried out in March 2008. Using a structured questionnaire, house-to-house interview of the residents was conducted by doctors trained for this purpose. Residents' knowledge and experience of clinical features that suggest neurological dysfunction were ascertained. Informed consent was obtained and ethical approval obtained from the Ethics Committee of the University of Nigeria Teaching Hospital Enugu. Data obtained was analyzed using SPSS version 13.5.

RESULTS: Completed questionnaires were 239 in number. There were 138 males and 101 females with age range of 18 -75 years. Most respondents, 127 (53.1%), were aged 21 -30 years. Pain syndromes were most common with headache, low back pain and neuropathic pain accounting for the top 3 neurological disorders.

CONCLUSION: This study has suggested that pain syndromes affect large numbers of people ordinarily resident in semi-urban communities in Enugu, South East Nigeria. These syndromes have an effect on quality of life. There is need for further large scale studies as well as increased public health strategies for addressing neurological diseases including pain disorders.

KEY WORDS: burden; neurological disease; Nigerian communities

after ischaemic heart disease which is the leading cause of disease burden.²

In Nigeria, some hospital based data are available. In a review of medical admissions between 1990 -1992 at the Nnamdi Azikiwe University Teaching Hospital, Nnewi (South East Nigeria), neurological diseases ranked second to cardiovascular disorders.³ Another review by Onwubere and Ike of admissions in the medical wards of the University of Nigeria Teaching Hospital, Enugu, from 1993 -1998, however revealed neurological diseases to be commonest followed by cardiovascular disorders.⁴ The latter is a much bigger tertiary facility than the former and has significantly larger patient turnover. No community based study of neurological disease burden has ever been conducted in the South East region, to the authors' best knowledge.

This study was carried out in Alfred Camp and Udi Siding communities in Enugu, South East Nigeria. These two semi-urban communities have an estimated population of 15,000 and originated as coal workers settlements in the 1950's. The residents are principally Igbo and most work as drivers, artisans, petty traders and subsistence farmers. There is electricity in most homes but toilet system is 'open bush'.

MATERIALS AND METHODS

This cross-sectional, descriptive study was carried out over two weekends in March 2008 in Alfred Camp and Udi Siding communities. These semi-rural communities were selected by random sampling from a list of ten such communities in Enugu State. The community leaders were involved and daily announcements made at the community squares for seven days prior to each of the agreed dates.

A structured questionnaire, pre-tested on patients at the Neurology Clinic of the University of Nigeria Teaching Hospital Enugu, was utilized. Ethical approval was obtained from the University of Nigeria Teaching Hospital Enugu Ethics Committee. House to house interview (every other house was selected) of adult (= 18 years of age) residents was conducted by doctors from the Neurology Unit trained for the purpose. Informed consent was obtained from all participants. Interviewees were questioned (using English or the local vernacular) on their personal experience of and knowledge of clinical features suggesting neurological dysfunction.

The data obtained was analyzed using SPSS version 13.5.

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INTRODUCTION

Of the global disease burden, neurological disorders account for 20% of the total and Africa is host to the greater majority of people affected.¹ Generally for sub-Saharan Africa, communicable diseases and maternal, perinatal, and nutritional conditions are the main contributors to the burden of disease. This is due in part to the HIV/AIDS epidemic and malaria.² In high income countries, cerebrovascular disease, unipolar depressive disorders and dementias rank 2nd, 3rd and 4th respectively

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RESULTS

A total of 239 questionnaires were returned duly completed and then analyzed. There were 138 males (57.7%) and 101 females (42.3%) with a male: female ratio of 1.37:1.

The age range was 18 -75 years with a mean of 38.5 years. The age distribution is as shown in table 1. Most respondents (127, 53.1%) were aged 21- 30 years while there were only 5 persons (2.1%) > 70 years of age.

Sixteen different classes of neurological dysfunctions were identified amongst the respondents. Headache, qualified as severe, was the commonest neurological dysfunction encountered in the survey affecting 94 persons (39.3%). This was followed by low back pain (88, 36.8%), neuropathic pain (78, 32.6%), memory

Table 1 showing distribution of age group of respondents

Age group (yrs)	Frequency %	Male	Frequency %	Female	Frequency %
< 20	14.2	20	58.8	14	41.2
21 30	53.1	73	57.5	54	42.5
31 40	13.8	19	57.6	14	42.4
41 50	6.3	9	60	6	40
51 60	7.1	11	64.7	6	35.3
61 70	3.3	4	50	4	50
> 70	2.1	2	40	3	60
Total		138	57.7	101	42.2

Table 2 showing distribution of neurological dysfunctions in residents

Dysfunction	Number (%)	Prevalent age group	% male / female
1. Severe headache	94 (38.3)	61 70	48/52
2. Low back pain	88 (36.8)	61 70	48/52
3. Neuropathic pain	78 (32.6)	61 70	45/55
4. Memory impairment	55 (23)	>70	40/60
5. Sleep disorder	55 (23)	>70	44/56
6. Visual impairment	45 (18.8)	41 50	49/51
7. Vertiginous disorder	35 (14.6)	>70	34/66
8. Tremor	34 (14.2)	61 70	56/44
9. Postural disorder with frequent falls	17 (7.1)	>70	65/35
10. Anosmia	11 (4.6)	41 50	27/71
11. Erectile dysfunction	10 (4.2)	>70	100/-
12. Syncopal attacks	8 (3.3)	61 70	25/75
13. Hearing impairment	8 (3.3)	>70	75/25
14. Incontinence	7 (2.9)	>70	100/-
15. Convulsive seizures	5 (2.1)	41 50	100/-
16. Hemiparesis	4 (1.7)	61 70	75/25

impairment (55, 23%) and sleep disorders (55, 23%). Hemiparesis (4, 1.7%) was the least documented. Table 2 shows the entire spectrum of findings.

Discussion

Burden of disease is a measure of the gap between current health status and an ideal situation where everyone lives into old age free from disease and disability. Disability-adjusted life years (DALYs) is a summary measure of years of life lost because of premature mortality (YLL) and years of healthy life lost as a result of disability (YLD). One DALY can be thought of as one lost year of healthy life due to a specific disease, disorder or injury.⁵

The Global Burden of Disease study conducted in 2002 by the WHO, the World Bank and the Harvard School of Public Health determined that neurological and psychiatric conditions accounted for 38.3% of the DALYs worldwide.⁶ In high income countries, cerebrovascular disease, unipolar depressive disorders and dementias (which are neurological disorders) rank 2nd, 3rd and 4th respectively after ischaemic heart disease which is the leading cause of disease burden.² For Nigeria and much of sub-Saharan Africa the leading cause of disease burden is HIV/AIDS followed in descending order by malaria, lower respiratory tract infections and diarrhoeal diseases.²

In tertiary hospitals in South East Nigeria, neurological conditions accounted for a significant proportion of inpatient hospitalizations (ranking 1st in Enugu and 2nd in Nnewi).^{3,4} In Canada just over 9% of acute care hospitalizations and 19% of patient days in acute care hospitals between 2004-2005 and 20% of patients receiving inpatient rehabilitation in 2005-2006 were for neurological conditions.⁶ The high incidence of neurological conditions in the Nigerian studies could be accounted for by the fact that such serious conditions are necessarily brought to the tertiary centres for management.

This study has demonstrated a wide spectrum of symptoms of neurological dysfunction in typical Nigerian semi-urban communities populated by mostly the poor and low- income earners. There is a high frequency of pain syndromes in this study, comprising headache, low back pain and neuropathic pain. These may have multiple aetiologies contributed to by personal factors and environmental stress. Severe headache was the most prevalent condition - found in 94 persons (38.3%). These people were mostly old aged (61 -70 years) and predominantly female. Indeed all the pain syndromes shared these characteristics - older age group affectation and predominantly female gender predisposition. The rest of the findings are quite in keeping. For example memory impairment was commonly seen in those aged more than 70 years and could possibly be an effect of unrecognized amnesic

syndromes and dementia. No female was recorded to have convulsive seizures. This could reflect cultural bias, as it is unfavourable and thus not likely to be reported, for a woman of marriageable age in a community to suffer epilepsy especially the convulsive type. Of interest as well was that of the 16 identified classes of neurologic dysfunction, 9 were predominant in women despite their smaller population. No reason can be advanced for this occurrence.

Unfortunately this study was not powered to investigate possible specific neurologic diagnoses and to calculate disability adjusted life years (DALYs) which could have provided greater insight to the scope of the situation.

Neurological conditions are notoriously chronic with only few being curable. They cause symptoms and disability which can be serious challenges for individuals. The burden of neurological disease can have particularly devastating effects in the poor. These include the loss of gainful employment, with the attendant loss of family income; the requirement for care giving, with further potential loss of wages; the cost of medications; and the need for other medical services.

As health care services expectedly improve in the country and people get to live to older ages, it can be anticipated that the contribution of neurological diseases to morbidity and mortality will increase as well. Thus it is expedient that public health policy planners and health care system administrators keep abreast of needed strategies to cope with the demand on the system.

CONCLUSION

Neurological disorders are a significant cause of morbidity and mortality worldwide. In semi-urban South

East Nigerian communities there is a wide spectrum of neurological dysfunctions affecting productive sections of the populace. Further large scale studies sufficiently powered to identify specific neurologic entities predominant in the populace are necessary.

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