Clinical profile and pattern of management of stroke at Elobeid hospital, West Sudan

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Objectives: To assess the prevalence of stroke and pattern of management at Elobeid teaching hospital – West Sudan.

Patients and methods: This is a hospital-based retrospective study done at Elobeid teaching hospital by reviewing the records of patients admitted to the medical wards with stroke in the period from January 2011 to December 2011.

Results: The study included 98 patients who were admitted to the medical wards with clinical diagnosis of stroke. The number of females was 50 (51%) and 48 were males (49%). More than half of the patients (56%) were above 60 years of age. The mean age of the females was 64.5 ± 15.5 years, while the mean age of males was 66 ±16.5 years. Brain CT scan was done for 80 patients, in 78 patients the diagnosis of stroke was confirmed, while the CT was normal in 2 patients. Ischaemic stroke was reported in 60 cases while the remaining 18 cases categorized as haemorrhagic. Among patients with ischaemic stroke, 34 (43%) patients found to have Plasmodium falciparum malaria. 27 patients were hypertensive, one patient was diabetic, and one patient was hypertensive and diabetic. 38 patients received antihypertensive drug (s) at admission, although only 8 patients of them have blood pressure more than 220/120 mmHg and no evidence of other medical condition that necessitate urgent lower of blood pressure such as acute myocardial infarction. Almost all patients (93%) with ischaemic stroke were given aspirin. Lowering of high blood pressure is the only intervention that done for patients with haemorrhagic stroke in our setting and this practice goes in line with others practice and there is some evidence that acute blood pressure reduction is safe and associated with slowed haematoma growth and reduced risk of early neurological deterioration.

Conclusion: Stroke is a major health problem and a leading cause of morbidity and mortality in our community. To improve the outcome in our situation, in the present of limited facilities, training courses in management of stroke should be done and a well designed guide lines for management stroke should be available.

Key words: Stroke, ischemic stroke, haemorrhagic stroke.

INTRODUCTION

Stroke is the second most common cause of death worldwide, exceeded only by heart disease (Droste et al., 2003). It is a disease predominantly of elderly people. Three quarters of strokes occur after age 65 years and age has a great influence on the outcomes of stroke (Chen et al., 2010). There are 2 main types of stroke, haemorrhagic and ischaemic. Haemorrhagic stroke involves bleeding within the brain and results from a variety of conditions, including uncontrolled hypertension and aneurysms. Two types of of haemorrhagic stroke exist: intracerebral and subarachnoid which are associated with brain tissue damage emerging from the rupture of a cerebral artery within or on the surface of the brain respectively. Similarly there are 2 types of ischaemic stroke: thrombotic and embolic; together, the two types account for approximately 85% of all stroke (Luders, 2007).

Elobeid Teaching Hospital is in North Kordofan state, Middle West of Sudan. It has a wide catch up area including different states (North Kordofan, West
Kordofan, South Kordofan, parts of Darfour states). This study was aimed to assess the clinical profile and pattern of management of stroke at ElObeid teaching hospital.

PATIENTS AND METHODS

This was a hospital based retrospective study done at ElObeid teaching hospital by reviewing the records of patients admitted to the medical wards with stroke in the period from January 2011 to December 2011. The total number of patients admitted to hospital with stroke in this period was 186 patients but 88 patients were excluded from the study because of deficient records and therefore the number of records which were reviewed is 98.

RESULTS

This study included 98 patients who were admitted to the medical wards with stroke. The number of females was 50 (51%) and 48 were males (49%). The age distribution of the patients is shown in Table 1. Female’s ages range from 27 to 90 years while males ages range from 22 to 100 years. The mean age of the females was 64.5 ± 15.5 years while the mean age of males was 66 ±16.5 years.

More than half of patients came from rural areas (58 patients), while 40 (41%) patients were from urban area. Brain CT was done for 80 patients, in 78 patients the diagnosis of stroke was confirmed while the CT report was normal in 2 patients. Ischaemic stroke was reported in 60(80%) cases while the remaining 18(20%) cases were categorized as having haemorrhagic stroke. The site of the haemorrhage was as follows: 11 (61%) patients had intracerebral haemorrhage while 5 (28%) patients had subcortical haemorrhage involving the internal capsule. Two patients had left sided siddural haematoma. Brain atrophy was reported in 20 (25%) patients. In 18 (18%) patients the diagnosis of stroke was made on clinical ground alone. Fifty five (56%) patients presented with right-sided hemiplegia or hemiparesis, while 43 (44%) patients presented with left-sided weakness.

Among patients with ischaemic stroke, 34 (43%) patients were found to have malaria which was confirmed with positive peripheral blood film. 27(28%) patients were hypertensive, one patient was diabetic, and one patient was hypertensive and diabetic. The drugs prescribed for patients with ischaemic stroke are shown in table 1. 38 (39%) patients received antihypertensive drug during their admission, from these 33 (87%) patients received amlodipine 5 mg, one patient received nefidipine 20 mg and four patients received atenolol 100 mg. Broad spectrum antibiotics were prescribed for 22 (22%) patients with stroke, 18 (patients received intravenous ceftriaxone injection. Vitamin B1, B6, B12 combination was given to 15 (15%) patients.

DISCUSSION

Stroke is a medical emergency that requires prompt treatment. This study included 98 patients who were admitted to the medical wards with stroke, with almost similar sex incidence. More than half of patients (56%) were above 60 years of age (Figure 1). The mean age of the females was 64.5 ± 15.5 years while the mean age of males was 66 ±16.5 years. These results are keeping with other observations that stroke is predominantly a disease of elderly (Ariesen et al., 2003). Cranial imaging is required to differentiate haemorrhagic stroke from ischaemic stroke.

According to the brain CT which was done for 80 patients, in 60 patients (75%) the stroke was of ischaemic type and this is again similar to others observations that the majority of strokes are due to blockage of an artery in the brain by blood clot (Kirmani et al., 2012). Among patients with ischaemic stroke, 34 (43%) patients found to have malaria which was confirmed by positive peripheral blood film and therefore Plasmodium falciparum malaria, which was responsible for all cases can be considered as an important predisposing cause of stroke due to its association with significant degree of dehydration and hypotension. This observation is not found in others studies specially most of which came from areas where malaria is not a health problem as in our situation.

In this study 38 patients received antihypertensive drug(s) at admission. In 8 patients the blood pressure was more than 220/120 mmHg and nefidipine 10 mg capsules sublingually was given as initial treatment and the blood pressure then maintained on nefidipine 20mg, amlodipine 5mg or atenolol 100 mg daily. Elevated blood pressure may have a protective effect in the initial period after an ischaemic stroke, and studies have shown adverse outcomes when blood pressure in lowered in the acute period (Oliveira-Filho et al., 2003). Most patients who present with hypertension during a stroke will have a spontaneous decrease in blood pressure without any treatment, in the first hours after presentation (Oliveira-Filho et al., 2003). Therefore it is prudent not to treat elevated blood pressure for 24 hours after acute stroke unless the blood pressure exceeds 220/120 mmHg or treatment is warranted by another medical condition as during an acute myocardial infarction (Bernheisel et al., 2011).

Almost all patients (93%) (Table 1) with ischaemic stroke given aspirin and this practice is consistent with the consensus that all patients who have not received thrombolitics and who do not have contraindications to aspirin should be given aspirin within 24 hours to 48 hours of symptoms onset (Dirner et al., 2003). The
Table 1. Drugs prescribed for patients with ischaemic stroke (n: 60)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Number of patients</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin 100 mg tablets</td>
<td>56</td>
<td>93%</td>
</tr>
<tr>
<td>Atorvastatin 20 mg tablets</td>
<td>56</td>
<td>93%</td>
</tr>
<tr>
<td>Piracetam 400 mg tablets</td>
<td>54</td>
<td>90%</td>
</tr>
<tr>
<td>Artemether injection 80 mg</td>
<td>19</td>
<td>32%</td>
</tr>
<tr>
<td>Ceftriaxone injection 1 gm</td>
<td>16</td>
<td>27%</td>
</tr>
<tr>
<td>Vitamin B1, B6, B12 combination</td>
<td>10</td>
<td>17%</td>
</tr>
<tr>
<td>Clopidogrel 75 mg</td>
<td>9</td>
<td>15%</td>
</tr>
</tbody>
</table>

Table 2. Drugs prescribed for patients with haemorrhagic stroke (n: 18)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Number of patients</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amlodipine 5 mg tablets</td>
<td>11</td>
<td>61%</td>
</tr>
<tr>
<td>Atorvastatin 20 mg tablets</td>
<td>7</td>
<td>39%</td>
</tr>
<tr>
<td>Artemether injection 80 mg</td>
<td>6</td>
<td>33%</td>
</tr>
<tr>
<td>Piracetam 400 mg</td>
<td>5</td>
<td>28%</td>
</tr>
<tr>
<td>Ceftriaxone injection 1 gm</td>
<td>4</td>
<td>22%</td>
</tr>
<tr>
<td>Vitamin B1, B6, B12 combination</td>
<td>4</td>
<td>22%</td>
</tr>
</tbody>
</table>

Majority of patients (93%) with ischaemic stroke received atorvastatin and this is similar to other practice since the use of statins has been found to improve both the incidence and survival in acute ischaemic stroke (Montecucco et al., 2012). Atorvastatin has developed a well defined role in the primary and secondary prevention of cerebrovascular disease, and appears to have a particularly prominent place in preventing such disease in coronary heart disease (CHD) patients, and in the post-stroke and post-TIA setting in patients without CHD (Gaspardone and Arca, 2007).

Although piracetam is used in majority (90%) of patients with ischaemic stroke, its use did not significantly improve neurological or functional outcome in patients with ischaemic stroke as shown by several studies (De Devn et al., 1997). When given as adjuvant to speech therapy, piracetam improves recovery of various language functions (Kessler et al., 2000).

Almost one third (27%), of ischaemic stroke patients in this study were given intravenous ceftriaxone injection, without obvious indication for such expensive drug and this is, of course, irrational drug prescription which should be revised and corrected. The same thing can be said about the prescription of combination of vitamin B1, B6, B12 without clear indication and benefits in such patients. Haemorrhagic stroke constitutes less than one fifth (18%), of patients included in this study and as we know the outcome of haemorrhagic stroke is poor even in advanced centre. Table 2

The initial management of intra-cerebral haemorrhage (ICH) should focus on urgent stabilization of cardio-respiratory variables and treatment of intracranial complications. Unlike the management of blood pressure in patients with ischaemic stroke which we talked about above, lowering of high blood pressure is the only intervention that can be done for patients with haemorrhagic stroke in our setting and this practice goes in line with others practice and there is some evidence that acute blood pressure reduction is safe and associated with slowed haematoma growth and reduced risk of early neurological deterioration (Elliott and Smith, 2010).

Conclusion

Stroke is a major health problem and a leading cause of morbidity and mortality in our community. To improve the outcome in our situation, in the present of limited facilities, training courses in management of stroke should be done and a well designed guide lines for management stroke should be available.

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