

Pattern of admission and clinical profile of post-stroke patients in a community hospital in Najran

Sarosh A. Khan, MBBS, MD.
Abdul-Rahman Bhat, MBBS, MD.
Aijaz A. Malik, BDS.
Latif A. Khan, MRCP.

Stroke is the third leading cause of death and the number one cause of disability in industrialized countries.¹ In 2 community-based studies in the Eastern Province of Saudi Arabia, the prevalence rate for stroke was found to be 178 per hundred thousand.² Patients who develop stroke are usually elderly and have underlying systemic disorders such as diabetes, hypertension, coronary artery disease, and so forth. After they recover partly or completely they are discharged from hospitals and follow medical or neurology departments. Many follow rehabilitation centers. Complications are common among this fragile group of post-stroke patients (PSP) and a significant number require hospital admission for various reasons.

This is a retrospective study performed on PSP admitted to the hospital under the Department of Medicine in Najran General Hospital (NGH) for a period of 3 years from the start of January 2000 to the end of December 2002. Najran General Hospital is a 200 bedded community hospital catering to 13 primary health care centers. All patients who were admitted with a diagnosis of old cerebrovascular accident were included in the study. These patients were either admitted due to subsequent stroke, a post-stroke complication or an associated medical disease. Patients admitted with index stroke and those with previous head injury were excluded. The study has taken into account the number of admissions rather than the number of patients. Thus, many cases were included in the study more than once. We obtained the data from the record section of NGH. The data were tabulated and analyzed.

A total of 267 PSP admissions were studied. Out of this, there were 147 (55%) male admissions and 120 (44.9%) female admissions. The age group ranged from 50-120 years (mean 70.96 ± 9.30 years). Most of the cases were between 60 and 70 years (49%) and the majority (98.1%) of the patients were Saudis. All cases were previously diagnosed to have cerebrovascular accident (stroke) and documented by computerized tomography (CT) scan of the brain. The most common type of stroke was thrombotic in 225 (84.3%) followed by hemorrhagic in 27 (10.1%), embolic in 10 (3.7%) and lacunar in 5 (1.9%). Two hundred and forty-five (91.8%) had hemiplegia; out of which 171 (69.8%) had right sided hemiplegia and

74 (30.2%) had left sided hemiplegia. Two hundred and nineteen (82%) were aphasic or dysphasic. One hundred and ninety-five (73%) had associated supranuclear 7th nerve and other cranial nerve palsies.

Common associated diseases present in these patients were diabetes (90%), hypertension (95%), coronary or rheumatic heart diseases (54%), and chronic liver disease (1.87%), deep vein thrombosis of leg veins in 3 cases and axillary vein thrombosis in one. Many were bedridden (77%) and needed a bedside attendant for care. One hundred and six (39.7%) had a nasogastric tube (NGT) for feeding purposes. One hundred and thirty (48.7%) were on an indwelling catheter and 7% on condom catheter. Many were incontinent but were using adult sized diapers. Intertrigo including candidiasis was noted in some with diapers. Diaper use was due to insistence of the attendants who feared infection due to catheters. Fourteen percent of cases with old strokes were ambulatory needing no support for activities of daily living. The main reason of their admission was for associated diseases.

The earliest a patient was readmitted to the hospital after stroke was 2 weeks but the majority of the patients needed admission to the ward after approximately 3 months. There were various reasons for admission of these patients, the most common ones being infection in 198 (74.2%) especially respiratory tract infection including aspiration pneumonia in 106 (39.7%) and urinary tract infection (UTI) in 80 (30%). Thirty-two patients were admitted for bedsores (12%) out of which 12 (4.9%) were infected. Fifty-eight (21.7%) patients were admitted with a diagnosis of acute confusional state and 2 main reasons were infection and dehydration. Out of these many patients had dehydration due to a history of not taking feeds. Of these, 23 were without NGT and 35 had an NGT. Uncontrolled diabetes mellitus, hypertension, congestive cardiac failure and arrhythmias were the other factors, which brought the patients to the hospital in 9.7%, 4.9%, 4.5% and 2.2%. Subsequent stroke (second time or more) was the reason for 3% of admissions. Duration of hospital stay varied depending on the diagnosis for which patients were admitted. One hundred and fifty-six (58.4%) cases were admitted for less than 7 days, 70 (26.2%) for a period of 7-14 days and 41 (15.35%) for more than 14 days. Among patients admitted with various infections, the reason for the longest hospital stay was for infected bedsores (mean \pm standard deviation (SD)) 22.92 ± 5.25 days; aspiration pneumonia and respiratory infections 9.49 ± 2.96 days whereas the shortest duration was for UTI 5.087 ± 1.058 days. Overall the mean duration of stay in the hospital was 9.12 ± 3.91 days. Outcome

of these admissions was good. Most of the patients recovered from their immediate illness (96%). Two percent left the hospital against medical advice, while another 2% died. With the increase in diseases like diabetes and hypertension, it is expected that the incidence of related complications will rise. Among these stroke remains an important cause of morbidity and mortality. After an episode of stroke, patients are prone to develop various post-stroke complications as well as subsequent strokes.

In our study the main reasons for admission were infection (74.2%), other complications (32.95%), aggravation of comorbid diseases (21%), subsequent stroke (3%) and social reasons. Note that many patients had more than one reason for admission and many patients were admitted more than once. Among infections, respiratory infection including aspiration pneumonia was the main cause (39.7%). This was seen more commonly in patients without NGT than those with NGT. Use of NGT has been shown to decrease the frequency of aspiration pneumonia, which occurs in approximately half of stroke patients. However, problems with long-term NGT use have been peritubal growth of bacteria, peritubal reflux of stomach contents, tube dislodgment, and tube clogging. Feeding in a recumbent position and reclining the patient immediately after feeds may increase the likelihood of aspiration pneumonia. To prevent NGT related complications, some nursing interventions suggested are checking the gastric residue periodically and the use of protective mittens by disturbed patients. Difficulty may also be encountered in giving medicines through NGT.

The importance of medical and dental factors in aspiration pneumonia in an older population has been proved in many studies.³ Dental care is important in the prevention of aspiration of infected material which may cause lung abscess. Urinary tract infection was commonly seen (30%) in our cases. This has been found to be the most common cause of infection developing in patients with stroke,⁴ patients on catheter (both indwelling and condom) being more prone. Incomplete bladder emptying or urinary retention in PSP with apparently normal bladders should be addressed. Most of our cases needed change of catheter and a course of antibiotics.

Bedsore were seen in 12%, especially in those who were bedridden and had developed stroke more than 6 months back. These patients were admitted for the longest duration in the hospital as they proved to be difficult to treat. Changing posture more often, keeping them at an angle of 30°, keeping the bedding dry, improving the nutritional status of patients and, more recently, automated turning beds help to prevent bedsore and improve

healing. Constipation was one of the common treatable conditions which were noted in our PSP. Many needed enema or manual removal of hard stools, or both. Bedridden state, liquid or semisolid diet lacking in fiber and possible pseudo obstruction in old age could be contributory causes. A small number of attendants insisted on admission for the stroke patients despite not having any clear indication. On enquiry it was revealed in confidence that the attendants needed respite for a few days to set things right at home which included cleaning patient's room and washing linen especially on weekends. Some just had attendant fatigue!

Most of the patients had a good immediate prognosis. The main causes of death in the 2% who died were septicemia due to bilateral pneumonia and infected bedsore, and respiratory failure due to aspiration. Whereas, others died due to associated diseases like coronary artery disease and its complications.

Thirty to fifty percent of the patients with stroke have depression within 2 years of their stroke.⁵ Unfortunately, this remains undiagnosed and untreated as the doctor regards the symptoms as "understandable" after stroke. So we believe a psychiatrist should be part of the team treating such cases. After the acute stroke, rehabilitation occurs during the remainder of the patient's lifetime. Empathy is needed to understand the aftermath with which many stroke survivors live. It is recommended to begin rehabilitation-oriented care immediately, and increase the patient's activity as soon as medically feasible during the acute phase. Patient and attendant education especially teaching them proper feeding techniques, care of catheters and frequent change of posture can go a long way in preventing the most common cause of admission as well as death in stroke patients.

As diabetes and hypertension were seen in most PSP it is understandable that good control of these underlying causative diseases will form the cornerstone of primary stroke prevention programs. We recommend establishment of Comprehensive Stroke Centers in the Kingdom of Saudi Arabia to take care of acute stroke cases as well as to have a multidisciplinary approach in treating PSP. Key elements of these Stroke Centers would include stroke teams, stroke units, written care protocols, and an integrated response system. Stress should be laid on improving functional status in such centers. The need for a geriatrician is felt, as we have highlighted previously.⁶ The establishment of Stroke Centers has the potential to improve the care of PSP on a long term basis. Considering the magnitude of the problem, programs promoting primary and secondary stroke prevention should be undertaken at various levels.

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From the Departments of Medicine (Khan S, Khan L, Bhat), and Dental Surgery (Malik), Najran General Hospital, Najran, Kingdom of Saudi Arabia. Address correspondence and reprint requests to Dr. Sarosh A. Khan, Department of Medicine, Najran General Hospital, PO Box 52, Najran, Kingdom of Saudi Arabia. Tel. +966 (7) 5424648. Fax. +966 (7) 5421932. E-mail: saroshahmed@yahoo.com

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