Stroke: real world experiences

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Stroke is a major cause of death and disability globally, with an expected rise in numbers in tandem with ageing and economic transition of developing countries[1]. Stroke is Singapore's fourth leading cause of death and hospitalisations, with a prevalence of 4% among adults aged 50 years and above[2]. The Decade of the Brain has seen major advances in the understanding of the pathophysiology and management of stroke, based on research performed in predominantly Western populations. It is unclear how much of these are applicable or effective in real world settings.

Neuroimaging is a mandatory component of the evaluation of any patient suspected to have had a stroke[3]. Computed tomography (CT), the most widely-used technique, may appear normal or show subtle changes that are suspicious but not diagnostic of ischaemic stroke, when performed within a few hours of stroke onset. Man et al[4] report their experience with CT and CT perfusion of 42 patients imaged within 24 hours of stroke onset. Of note is their finding of perfusion deficits among 23% of patients with normal CT, and of normal follow-up scans among those with normal CT and CT perfusion scans. CT perfusion imaging, taking less than a minute, adds further information to normal or suspicious scans aiding the physician in the diagnosis of stroke, particularly in the early hours after symptom onset.

Prognostication after stroke has always been challenging. The combination of clinical findings and magnetic resonance (MR) imaging, particularly the diffusion-weighted imaging (DWI) component, has been proposed in the hyperacute setting[3]. Parmar et al[5] report early work on the prognostic utility of high field-strength MR imaging performed from one day to six months after stroke among 11 patients. Their finding of near complete recovery among those with unaffected or displaced white matter tracts, and persistent residual deficits among those with disrupted tracts, supports this intuitive hypothesis, and again provides useful information when communicating outcomes to patients and families. However, as in the paper by Man et al[4], prospective studies involving larger cohorts are needed to provide more information on the usefulness of these exciting new techniques.

Among the major complications of stroke is pneumonia. Hassan et al[6] found stroke-associated pneumonia in 23% of 443 patients in Pakistan admitted within 72 hours of onset, two-thirds of which occurred within 48 hours of admission. Abnormal chest radiographs were found in a quarter, and a positive trachaeal aspirate in 38%. Less than 50% had abnormal radiographs or cultures, but this group had increased length of stay. The predominant organisms were *Staphylococcus aureus* and *Pseudomonas aeruginosa* both in the early and late phases. This finding would be relevant to their authors' hospital; each centre should determine its own microbiological profile so that appropriate antibiotics can be started early. The physician is reminded that the diagnosis of pneumonia includes clinical signs such as fever, purulent sputum and abnormal chest examination[7].

Stroke units have been shown to reduce death and dependence, both in the short and long term[8]. The robustness of this finding is supported by Ko and Sheppard[9], who compared the outcome of 188 stroke unit patients to 177 group-matched stroke patients managed in the general medical ward in Hong Kong within 72 hours of moderate to severe stroke. Mortality at day 28 and 120 was reduced from 17.2% to 3.3%, and 24.7% to 5%, respectively, the latter attributable to stroke unit care. Death and institutionalisation were similarly reduced, as was length of hospital stay. This was despite similar treatment regimen, pharmacotherapy, nursing care, rehabilitation methods, ward designs and environments. All patients were under the same group of healthcare professionals. This study reinforces the call for all stroke patients to be managed in stroke units, no matter where in the world they may be[8].

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Stroke impacts the stroke survivor in many ways, including his quality of life (QOL). In a study of 100 stroke patients attending a rehabilitation centre in Singapore, Kong and Yang[10] found that at 22 months, 47% needed varying degrees of assistance in self-care. However, their health-related QOL scores were similar to the general population, except expectedly for the domains of physical function. While not related to disability scores, QOL was significantly poorer among those with depression, which was found in 24%. About 26% returned to work, most to their previous jobs. While the results of this study in a highly-selected population are not directly translatable to the general stroke population, the authors' call to screen for depression should be heeded, as there are effective interventions to improve mood in depressed stroke patients[11].

It appears that findings in meta-analyses and systematic reviews of interventions for stroke are broadly applicable. Local data should be obtained where possible for specific populations not entered into clinical trials or where the local scenario differs from that experienced elsewhere. Newer imaging techniques provide the physician with additional diagnostic and prognostic information – more data will show where and how this knowledge can be best utilised. ◼

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