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Status Epilepticus in the Resource Poor Countries

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Status epilepticus is common in patients admitted to hospitals in resource poor countries (RPC). However, there appear to be differences in the epidemiology, aetiology and outcome of status epilepticus in these regions compared to the West, although there is little data from the former regions.

RPC countries are those classified by the World Bank as low income or middle-low income countries encompass those situated in the tropical and subtropical regions. The International League Against Epilepsy (ILAE) definition of status epilepticus (ILAE, 1993) is problematic in these areas, since patients often present to health facilities, without adequate documentation of the duration of convulsion. Thus more pragmatic definitions have been developed (Sadarangani et al., 2008).

Most studies on status epilepticus in RPC describe convulsive status epilepticus (CSE) (Misra et al., 2008;Sadarangani et al., 2008), since non-convulsive epilepticus is rarely detected in these regions. Although one study non-convulsive status epilepticus was detected in 11% of adults with altered mental status (Narayanan and Murthy, 2007). The incidence of convulsive status epilepticus appears to be higher in RPC than the West, but there has been only one epidemiological study conducted. In this study, the incidence of children fulfilling the ILAE definition of CSE who presented to a Kenyan District General Hospital was 35/100,000/year, with 268/100,000/year in children aged 1-11 months old. The incidence is higher if those with probable epilepsy are also included (35/100,000/year, with 268/100,000/year). These figures are likely to be an underestimate; since many children with CSE are not admitted hospital, either because convulsions are thought to be caused by traditional causes or the children die before they reach hospital. Thus the rate in this area of Kenya is 2-5 times that of similar study in London, United Kingdom (Chin et al., 2006).

CSE appears to be more common in children than adults; mainly because acute symptomatic seizures or febrile status epilepticus are more common, particularly in RPC(Sadarangani et al., 2008;Tabarki et al., 2001). A significant proportion of people with epilepsy in RPC have an episode of CSE, usually in childhood and often as the first reported seizure. Thus in a cross-sectional study of active convulsive epilepsy in Kenya, 35% of those identified with active convulsive epilepsy had a history of prolonged seizures (probable CSE), of which 75% were associated with a febrile illness(Edwards et al., 2008). Thus, the high incidence of acute symptomatic epilepsy in many RPC may account for the increased incidence and prevalence of epilepsy in these regions.

Most CSE is symptomatic, with the increased incidence attributed to the increased incidence of infections (Misra et al., 2008;Sadarangani et al., 2008). In malaria endemic areas, malaria is an important cause of CSE in children (Sadarangani et al., 2008), whist bacterial meningitis and viral encephalitis are important causes in other areas (Murthy et al., 2007). Patients appear to be in status for longer periods, although there is little reliable data on the duration of CSE in patients presenting to hospital. The increase duration may be due to the lack of treatment prior to admission to hospital, inadequate treatment on admission to hospital and/or a reduction in the responsiveness to the benzodiazepines.

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The mortality associated with CSE in RPC is greater (11-15%), both in adults (Murthy et al., 2007) and children (Sadarangani et al., 2008); but the long-term outcome in terms of premature mortality and neurocognitive sequelae is undetermined. Risk factors for mortality i.e. young age (< 1 years), aetiology (particularly bacterial meningitis), focal seizures and duration of seizure, are similar to the West. The neuro-cognitive outcome of CSE appears worse with 36% of Tunisian children having intellectual disability or epilepsy (Tabarki et al., 2001). The risk factors for neuro-cognitive impairment include young age (<1 year), focal seizures.

Many hospitals in RPC, particularly those in rural areas have few drugs to treat CSE, and many hospitals do not have intensive care facilities such as ventilators or sufficient staff to provide optimal management. The antiepileptic drugs are limited to benzodiazepines, particularly Diazepam and Phenobarbital. However, the response to diazepam appears poorer in many areas, either because the patients present with seizures lasting many hours or possibly the aetiology such as malaria makes them more resistant to these compounds. The treatment of CSE in RPC is further complicated by the lack of rectal preparations of diazepam (parenteral preparation is often used, but has erratic absorption (Ogutu et al., 2002)) and lack of supply of parenteral Phenobarbital (Wilmshurst and Newton, 2005). These issues may affect the outcome.

Thus, CSE appears to be more common, with a worse outcome in RPC than in the West; but at present, there is little data on which to base the burden and recommendations of treatment in these countries.

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