

Monitoring in Post Stroke Management

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Introduction

In this commentary, the value of close monitoring during the early stages of post-acute stroke is recognized due to a growing awareness that the occurrence of neurological and medical complications has been associated with clinical deterioration. Furthermore, numerous animal and human studies have shown that hypotension, hyperglycaemia, pyrexia, hypoxia and dehydration aggravate neuronal damage after stroke [1].

Still, worldwide and especially in countries suffering from austerity, like Greece, monitoring is often omitted due to staff shortages, patients may be discharged without proper assessment only to return within weeks. Others may be discharged without appropriate home support. Monitoring a stroke patient gives an indication of their rate of recovery and can uncover otherwise unperceived coping difficulties. However, it is essential to have a simple tool for assessment purposes especially in situations where nurses are pressed for time. Hence, monitoring of stroke patients has become an important nursing step in stroke care [2].

The aim of this commentary is to capitalize the impact of complications on clinical outcome in patients with stroke in the early sub-acute stage through nursing monitoring interventions such as close glucose and blood pressure monitoring.

Discussion

Close post stroke monitoring is systematically practised in Stroke Units worldwide and less often in Medical or Neurology Wards, where, due to poorer staff patient ratios, a staff nurse may care for more patients. Yet, even in specialized wards, staff nurses feel that there is often still a lot to be done with regard to glucose or blood pressure management after stroke. In a recent Greek study, they also expressed other pressing continuing education needs including ways of delivering individualised care. Other concerns were the need to update information and to attain more professional autonomy.

In a study from Italy, which looked at patient outcomes and length of stay comparing stroke unit and a cerebrovascular unit, showed that hospitalisation in a close monitoring environment positively influenced patient outcomes at discharge by 2.5-fold [3].

According to Hankey in 2005 stroke units in Australia vary enormously with regard to monitoring of patients for physiological parameters and abnormalities especially during the first 48 hours from onset. Some management systems have one-to-one nursing with invasive monitoring of intracranial pressure and blood pressure and aggressive measures for abnormal findings [4]. Patients in other stroke intensive-care units may be subjected to only the recordings of blood pressure, temperature, pulse and the Glasgow Coma Scale. However, Hankey in 2005 warns that in units that use invasive monitoring risks

exist such as infection and bleeding. Other invasive interventions may lead to further complications such as excessive blood pressure reduction or fluid overload. So, although monitoring can benefit the patient by administering early remedial intervention, the nurse needs to be aware of the dangers of overzealous treatment.

Post-stroke hyperglycaemia is perceived as a reflection of relative insulin deficiency [5]. But it is unclear how intensively glucose levels should be corrected without risking hypoglycaemia. Indisputably, glucose containing intravenous solutions should be avoided in the acute phase of stroke [6]. Although precise euglycaemia guidelines post-stroke need further development, existing data recommends maintaining normoglycaemia after acute stroke by close nursing monitoring.

Middleton et al., in 2011 comment that during the first days of stroke onset, about half of all patients will present with hyperthermia and hyperglycaemia resulting in enlarged infarct size and associated worsening of the initial stroke symptomatology [7]. Their nursing intervention trial showed that close monitoring and improved management of fever, hyperglycaemia and swallowing during the first three days from stroke onset can result in decreased rates of death, dependency, and improved processes of care.

Yet, studies have highlighted how vitally important it is that all nurses obtain state-of-the-art training in stroke management. Furthermore, both nurses and doctors commented on the lack of preparedness of new nurses coming onto the wards. In this case, their in-house continuing training for stroke specific knowledge and skills is provided mostly by senior staff via peer-to-peer learning but as suggested, much of this should have been part of basic nurse training before nurse qualification.

For example, student nurses and newly qualified personnel should be more aware of the importance of maintaining normo-glycaemia in stroke patients, especially during the first 48-72 hours from onset, preferably via a standardised protocol of care, as hyperglycaemia is known to exacerbate ischaemic lesions and is associated with increased brain oedema and decreased cerebral blood flow which results in longer hospital stays, increased costs and greater short-term and long-term mortality [8,9].

Yet, according to Mazighi and Amarenco, in 2001 there is poor agreement between researchers and clinicians as to how hyperglycaemia after stroke should be treated [10]. Despite the lack of robust evidence as to how exactly glycaemic control should be achieved in the treatment of stroke patients, the general recommendation is to treat the condition carefully without developing hypoglycaemia [11].

Conclusion

It is noteworthy that as revealed by studies included in this commentary, thorough training in stroke care skills is essential for staff and of practical value in all settings where stroke patients may be admitted. The inclusion of a high standard of stroke care training for all nurses would draw attention to the specific needs of these patients and knowledge of where the nurse could initiate confidently and responsibly to ensure better outcomes.

As explained earlier, there is high quality evidence that good nursing management within multidisciplinary teamwork which focuses on key physiological variables delivers better post-discharge outcomes for stroke patients. These evidence based protocols initiated by nurses include the careful management of fever, hyperglycaemia, hypotension and swallowing difficulties.

A major component of sophisticated stroke care is focusing upon strategies to limit neurological damage by controlling abnormal physiological parameters. Although the evidence for specific interventions is not yet robust, however, stroke patients are still entitled to a high standard of acute care within a specialist environment such as a stroke unit. Therefore, the use of timely and systematic nursing monitoring interventions to correct and manage these parameters has proven its merits by reducing the incidence of early death.

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