The role of community nurses in stroke prevention

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A round 152,000 strokes occur each year in the UK, approximately 20% of which are fatal, with around 1,100,000 survivors making stroke the leading cause of acquired adult disability (Stroke Association, 2016). Stroke care is estimated to cost between £3.7 billion and £8 billion each year in formal and informal care and the cost to the NHS alone is over £3 billion a year (Department of Health [DH], 2010; Intercollegiate Stroke Working Party [ISWP], 2012; Stroke Association, 2016). The Stroke Association believes that 20,000 strokes per year in the UK could be avoided through effective prevention, increasing the quality of life of those affected as well as saving on the cost of care.

PREVENTION

The stroke care pathway, including secondary prevention, is extensively defined in the National Institute for Health and Care Excellence (NICE, 2008) and ISWP (2012) guidelines, however, there is little guidance on primary prevention. The ISWP guidelines explicitly state ‘this guideline does not cover primary prevention of stroke’ (ISWP, 2012), and instead refer to general advice on preventing vascular disease.

The National Stroke Strategy (DH, 2007) aimed to raise the level of stroke care including assessment of those who are at risk of stroke, and Progress in Improving Stroke Care (DH, 2010) reinforced that prevention remains the best way to reduce the cost of stroke; however, providing prevention services remains a challenge.

This article focuses on primary stroke prevention and how nurses in primary and community settings can play a role. Stroke and transient ischaemic attack (TIA) (see box above) share the same aetiology and risk factors, and are clinically differentiated solely on the length of time neurological function is lost (ISWP, 2012). Therefore, reference to ‘stroke risk factors’ or ‘stroke prevention’ in this paper refers to both stroke and TIA.

RISK FACTORS

As modifiable risk factors are shared by primary and secondary prevention it was considered appropriate to include evidence on both primary and secondary prevention, however, the focus of the article is given over to the former.

Hypertension

Hypertension is cited as the main risk factor for stroke (Birns, 2005; Williams, 2005; Cross, 2008; Lawrence et al, 2011; ISWP, 2012). Birns (2005)
and Cross (2008) both agreed that hypertension is an important risk factor to target and that the ideal blood pressure should be lower than 140/85mmHg, or 130/80mmHg for those with diabetes.

Birns (2005) did highlight that it is not always appropriate to perform aggressive blood pressure reduction through pharmaceutical methods, and that management through lifestyle modifications is the preferred option. Thus, the overall aim of lifestyle modification should be to resolve individual risk factors and reduce the risk and impact of hypertension.

**Modifiable lifestyle factors**

Five recurrent lifestyle factors have been identified in the prevention of stroke:
- Obesity and poor diet
- Physical inactivity
- Smoking
- Alcohol consumption
- Psychological stress.

**Obesity**

Obesity has historically been recognised as a risk factor for stroke (Daneski et al, 2010), and other authors identify obesity as a modifiable risk factor (Birns, 2005; Williams, 2005; Lawrence et al, 2009a). Although no studies demonstrate that weight reduction alone can prevent stroke, it is strongly related to reduced blood pressure. Diet and exercise are considered the main methods of safe, effective weight loss, with advice from both the ISWP (2012) and NICE (2012) outlining what constitutes a healthy diet.

Physical inactivity is linked to obesity and poor diet and exercise can have a positive effect on hypertension and reduced obesity (Lawrence et al, 2009a; Lawrence et al, 2011). Evidence shows that even moderately active people have a 20% lower risk of stroke and a lower risk of mortality should they experience a stroke (Lawrence et al, 2009a). People at risk of recurrent stroke should be advised of the benefits of regular exercise and community nurses should support patients in creating individually tailored exercise programmes (ISWP, 2012).

**Smoking**

Smoking is recognised as the greatest cause of preventable illness and early death in the UK (NICE, 2013), as well as being a modifiable risk factor for all population groups (Lawrence et al, 2009a). Observational data suggests that smoking increases the risk of stroke by a factor of 1.5–2, thus smoking reduction is an important aspect of stroke prevention (Birns, 2005; Lawrence et al, 2011). This risk decreases after people stop smoking, and after five years the elevated risk disappears (ISWP, 2012). Evidence suggests passive smoking is also a risk factor, therefore to be completely effective smoking cessation should involve the patient’s immediate family (Lawrence et al, 2011).

**Alcohol**

Alcohol has been identified as a risk factor for stroke, with excessive and ‘binge’ drinking linked to an increased risk (Birns, 2005; Cross, 2008; Lawrence et al, 2011). It has been suggested that if consumed in moderation, alcohol may actually be a protective factor in the more prevalent type of stroke (ischaemic), while increasing the risk of haemorrhagic stroke (Rehm, 2006; Lawrence et al, 2009a). However, both Rehm (2006) and Lawrence et al (2011) stated that the definitive risk levels were not accurately known (especially when considering the role excessive alcohol consumption plays in cardiovascular illnesses [NICE, 2010]), and the studies referred to standard safe alcohol consumption levels.

**Stress**

There is limited research into the relationship between stress and stroke, although an association is thought to exist and effective strategies to reduce stress need to be investigated (O’Donnell, 2010; Lawrence et al, 2011).

**Additional risk factors**

Atrial fibrillation is considered one of the key risk factors in stroke and the identification of atrial fibrillation by community nurses helps to ensure effective pharmacological prevention strategies (Bloe, 2011). Strokes as a result of atrial fibrillation were considered ‘largely avoidable’ through the appropriate use of anticoagulation by Jones et al (2014), therefore there is a focus on medical management to achieve anticoagulation and rate and rhythm control (Bloe, 2011). Community nurses should be aware of the signs and symptoms of atrial fibrillation so they can refer patients on for pharmacological therapy, as well as helping them with effective medicines management (Bloe, 2011; Jones, et 2014).

Diabetes mellitus is an independent risk factor for stroke, especially where it is poorly controlled (Williams, 2005); mortality and disability of those affected by stroke are significantly worse for this patient group (Birns, 2005). Extensive services exist for patients with diabetes mellitus, and their specific care and management is often left in the care of diabetes specialist teams. However, lifestyle factors form a significant part of diabetes management and these are also beneficial for preventing stroke (NICE, 2015).

Carotid artery disease is briefly mentioned in a study by Cross (2008) and expanded on in Birns (2005). Carotid stenosis — the narrowing of the carotid arteries that supply blood to the brain — is commonly associated with stroke and sometimes requires surgical intervention (Birns, 2005; ISWP, 2012). Management includes the reduction of modifiable lifestyle factors, in particular smoking, obesity and poor diet (Birns, 2005; ISWP, 2012).

Raised lipid levels, especially hypercholesterolemia, are a recognised risk factor for stroke and pharmaceutical intervention can play a part (Birns, 2005; ISWP, 2012). Epidemiological and observational studies have also shown a link between raised cholesterol and the risk of stroke, with a target blood cholesterol concentration of less than 3.5mmol/l (Birn, 2005; Cross, 2008). Management is also linked to lifestyle factors such as diet and exercise.

**CHALLENGING HEALTH BELIEFS**

Psychological theories have sought to explain how social environment and the person’s own perception of their
health and wellbeing influences their behaviour. By using these theories to structure any health promotion messages, community nurses can better allocate resources and formulate successful individualised plans (Lawrence, 2009a). For example, the transtheoretical model (Prochaska and DiClemente, 1983), looked at the efficacy of convincing smokers to give up and has subsequently been used to produce effective health promotion messages.

To maximise the success of health promotion schemes, community nurses must consider whether or not it is appropriate to engage and educate individuals on the importance of a healthy lifestyle (Lawrence, 2009a; O’Donnell et al, 2010). While there is a wealth of healthy lifestyle information available to community nurses and the general population, if patients do not feel the need to change they are not likely to engage with this.

In a stage referred to by Prochaska and DiClemente (1983) as ‘pre-contemplative’ (Sit et al, 2005; Rehm, 2006), a real and significant threat to an individual’s health has to be identified, at which point they may be open to changing their health beliefs. This is because risk perception is a key element in how individuals are motivated to adopt new behaviours (Prochaska and DiClemente, 1983; O’Donnell et al, 2010). Supporting the individual in making lifestyle changes through brief interventions and support as they enter the contemplative stage is likely to be more successful (Lawrence, 2009a; O’Donnell et al, 2010). The emphasis is on community nurses using their communication skills to identify patients’ strengths and aspirations and motivate them to consider the advantages and disadvantages of their lifestyle. Only then can they change their beliefs and attitudes (Lawrence, 2009a; O’Donnell et al, 2010). To maximise the success of any brief interventions, behavioural change must be internally motivated, and may require the person to fundamentally shift their beliefs.

Nurse-led health promotion
Health promotion is an important aspect of nursing care and community nurses can play a key role in supporting and educating patients (Birns, 2005; Lawrence et al, 2011; ISWP, 2012). The delivery of effective health promotion requires a clear understanding of lifestyle risk factors and behaviour change therapy (Lawrence et al, 2009b; Lawrence et al, 2011). Birns (2005) felt that nurse could play a ‘key role’ in stroke prevention, while Lawrence et al (2011) felt that they were ‘well-placed to raise health promotion issues with patients’, and that they should be encouraged to undertake further training in prevention. Guidelines also state that health promotion in secondary stroke prevention falls under the remit of the nurse (ISWP, 2012), which could also reasonably apply to primary care prevention.

Birns (2005) and Lawrence et al (2011) noted that health prevention and promotion requires a multidisciplinary effort. Access to a specialised multidisciplinary team in a local stroke unit provides the community nurse with support, allowing them to bring in specialised knowledge and advice.

Implementation of primary care stroke prevention, however, has been problematic, with the DH (2010) noting that almost half of the estimated total number of patients with hypertension were still unregistered. The year after the National Stroke Strategy (DH, 2007) was introduced, many local authorities reported difficulties in commissioning appropriate services, including stroke prevention. Thus, there is an opportunity for community nurses to step into this gap and provide a nurse-led community service.

With hypertension recognised as the main risk factor for stroke, modifiable lifestyle factors could be targeted by community nurses, who could be trained to carry out brief interventions following NICE guidance on smoking, alcohol, obesity and healthy eating (NICE, 2006a; NICE, 2006b; NICE, 2010). Additionally, community nurses can perform basic health monitoring such as blood pressure and reporting of blood tests (for lipid levels) and refer individuals to additional services.

Supporting community nurses will require funding, which may mean a redistribution of funds to stroke care, however, the Quality Outcome Framework hypertension and stroke bonuses could contribute to this (British Medical Association [BMA], 2016). The DH (2010) stated that care for the first year of a stroke can cost £11,900; if the Stroke Association’s projection of preventing 20,000 strokes a year was correct, this could cut annual NHS spending by £238 million a year (Stroke Association, 2016), money which could then be spent on community prevention services. Providing information to support patients’ lifestyle changes has the potential to save lives and reduce disability should stroke occur (Lawrence et al, 2009a); this has been supported in studies of nurse-led prevention schemes in other countries (Sit et al, 2005; Sullivan et al, 2008; Ireland et al, 2010).

CASE STUDIES

The service
The author spent some time observing a neurovascular clinic where people were screened for stroke or TIA and provided with treatment following the ISWP (2012) guidelines. However, patients who had not had a stroke — despite high risk factors — were discharged from the clinic with no follow-up. Aside from signposting to local smoking cessation services or being given a leaflet on healthy eating, there were few resources provided to further explore an individual’s risk factors and/or motivation to change.

After discussion with the specialist stroke nurses at the clinic, the author felt there was a wasted opportunity — a dearth of services for individuals with a real health risk who wished to change, meaning there was a high likelihood that they would experience a stroke in the future. It was suggested that there was an opportunity to create a primary prevention service staffed by community nurses trained in brief interventions who also had access to the stroke multidisciplinary team.
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Patients could be referred to this service while they were still motivated to change and nurses would be able to discuss with them how to adapt their lifestyle and increase their quality of life and general wellbeing. Services could be provided in the community or GP setting, with links to the acute stroke teams in local trusts.

The patient
The author was caring for a patient who had been admitted to hospital after a potential TIA, which had eventually been ruled out. The patient asked about the possibility of a subsequent stroke and was eager to explore any options that might reduce his risk. As he had no significant medical history or any medical conditions that increased his risk of stroke, the author felt it was more appropriate to discuss lifestyle modifications such as alcohol consumption and exercise. The author highlighted current guidelines on alcohol consumption and how it could impact the risk of stroke, and also recommended appropriate exercise levels for the patient’s age.

The patient discussed his involvement with a local walking group and how attending on a more regular basis and drinking less alcohol might be beneficial. Although the author had provided information on lifestyle modifications, it was the patient himself who initiated the discussion. As the main point of brief interventions is to let patients find a way to change their own behaviour, rather than nurses enforcing new habits, the author acted as a ‘sounding board’ for the patient, reinforcing knowledge rather than enforcing change. This treatment episode allowed the author to practise his communication and brief intervention skills, and demonstrated how the transtheoretical model could act as a framework for health promotion.

CONCLUSION
Guidelines for the provision of primary stroke prevention already exist within the primary care setting. The main difficulty, however, lies in the lack of services being commissioned, either because of financial difficulties or a lack of staff. Community nurses, with their clinical knowledge and expertise, could step forward to act as providers and case managers.

Community nurses can also help GP practices reach their Quality Outcome Framework targets, benefiting the health of the community and also providing additional financial support for primary prevention schemes. Although an immediate payoff may not be evident, a reduction in the proportion of the population experiencing strokes would vastly reduce the cost of care to the NHS, as well as improving the quality of life of thousands of people every year.

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