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The Nurse's Role in Enhancing Quality of Life Post-Stroke

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Abstract

Stroke remains a leading cause of disability, with over 795,000 individuals in the United States experiencing a stroke annually. Extensive research has focused on post-stroke management, particularly during the long rehabilitation process after the acute phase. However, research gaps exist for the "oldest old," or those aged 85 and older, who face unique challenges in treatment and the provision of social and emotional support. This article aims to provide primary care providers with current guidelines for post-stroke treatment tailored to elderly populations, emphasizing the importance of early rehabilitation and addressing the multifaceted needs of elderly stroke clients. The Critical Period after Stroke Study (CPASS) found that interventions targeting upper extremity motor rehabilitation conducted between 2 and 3 months post-stroke led to significantly greater recovery of motor function compared to controls. These findings underscore the significance of initiating therapy during critical windows and extending rehabilitation efforts into chronic stages post-stroke. The primary objective of post-stroke therapy is to transition the client into acute, sub-acute, or home/outpatient therapy as soon as they are medically stable, with significant psychosocial support essential for both the stroke survivor and their support system. Stroke disproportionately affects women, with risk factors and outcomes differing between men and women. Elderly women often live alone, lacking substantial social support, which increases their likelihood of requiring institutionalized or community care. The management of stroke in elderly clients should encompass a multifaceted approach, including dietary modifications, physical exercise or rehabilitation, adherence to prescribed

medications, and evaluation for depression, behavioral changes, and cognitive impairments. Primary care settings and advanced practice registered nurses play a critical role in ensuring continuity of care for stroke survivors, supporting their reintegration into the community, promoting self-management, and preventing secondary strokes.
Keywords: Stroke Rehabilitation, Post-Stroke Recovery, Nursing Interventions, Quality of Life, Patient-Centered Care, Holistic Nursing

Introduction

Stroke remains a significant public health concern and a leading cause of disability in the United States. As of 2021, cardiovascular disease, including stroke, accounted for 1 in 6 deaths. Among the more than 795,000 individuals in the United States who experience a stroke annually, 610,000 are first-time events. Approximately 87% of these cases are ischemic strokes. Additionally, stroke significantly reduces mobility in over half of survivors aged 65 and older. Given the profound impact of stroke, extensive research focuses on post-stroke management, particularly during the long rehabilitation process after the acute phase. However, much of this research concentrates on individuals younger than 85 years. For the "oldest old," or those aged 85 and older, there remain notable research gaps. This demographic faces unique challenges in both treatment and the provision of social and emotional support. This article aims to provide primary care providers with current guidelines for post-stroke treatment tailored to elderly populations. By emphasizing the importance of early rehabilitation, this article seeks to aid advanced practice registered nurses (APRNs) in addressing the multifaceted needs of elderly stroke clients. Additionally, it highlights health disparities, gender differences, and quality-of-life considerations within this population (McArthur et al., 2011).

The Critical Window and Rehabilitation

The extent of stroke-related damage varies greatly among individuals and is influenced by factors such as the location of the brain insult and coexisting conditions, including hypertension, hyperlipidemia, Type II diabetes, and other forms of atherosclerotic disease. These comorbidities can significantly impact a patient's prognosis and their potential for recovery to pre-stroke functional levels. The primary objective of rehabilitative care is to establish a continuum of care aimed at preventing secondary complications and enhancing the individual's quality of life (Jenq & Tinetti, 2015).

The term "rehabilitation" originates from the Latin word "habilitas," which translates to "to make able or to make fit again". Rehabilitation focuses on helping individuals achieve the highest realistic level of functioning, emphasizing the patient's abilities rather than their disabilities. Because each person's capabilities and challenges are unique, rehabilitation involves various levels of restorative therapy beginning in the acute care setting. Once stabilized and any required procedures are completed, the evaluation process determines the most suitable rehabilitation setting. Often, the decision about rehabilitation placement depends on the patient's insurance coverage and their capacity to cover expenses not covered by insurance, Medicare, or Medicaid. Therapy typically starts at the bedside in the acute care environment while these decisions are being made.

Considerable research has investigated the optimal timing for initiating therapy for post-stroke patients. A 2021 study, the *Critical Period after Stroke Study (CPASS)*, found that interventions targeting upper extremity (UE) motor rehabilitation conducted between 2 and 3 months post-stroke led to significantly greater recovery of UE motor function compared to controls who did not receive these specific interventions. Acute-phase patients (≤30 days post-stroke) also demonstrated smaller yet statistically significant improvements over the control group. In contrast, when the same interventions were provided at ≥6 months post-stroke to the chronic group, no significant differences were observed compared with the control group. Importantly, the early motor recovery gains seen in the subacute and acute groups were sustained for at least

12 months post-stroke. In the subacute group, the magnitude of UE motor recovery improvements was sufficient to result in meaningful clinical benefits (Dromerick et al., 2021). A related study conducted, identified evidence of an extended critical period of neuroplasticity following stroke, which facilitates improvements in body function and structure even in late chronic stages. This study was the first to report an extended window for recovery potential (Edwardson et al., 2023).

The findings from these studies underscore the significance of initiating therapy during these critical windows and extending rehabilitation efforts into chronic stages post-stroke. Such an approach could transform current rehabilitation practices, potentially leading to improved long-term outcomes for stroke survivors. While additional research is needed to generalize these findings, these studies provide hope that recovery from stroke-related disabilities can continue well beyond initial therapy phases.

The Impetus for Post-Stroke Therapy

The primary objective of post-stroke therapy is to transition the client into acute, sub-acute, or even home/outpatient therapy as soon as they are medically stable, as supported by the previously referenced research. Furthermore, significant psychosocial support is essential for both the stroke survivor and their family or support system. The consequences of a stroke extend beyond the individual to impact their entire support network. Actively involving the family in the rehabilitation process while the client undergoes therapy is crucial for sustaining the client's progress upon discharge to the home environment (Keilman et al., 2024).

The necessity for ongoing therapy remains critical as stroke survivors progress in their recovery. A recent study conducted in Sweden and published in September demonstrated a positive association between increased physical activity and functional recovery at six months post-stroke. The study suggested that targeted interventions for individuals experiencing a decline in physical activity during the subacute phase of recovery may lead to better functional outcomes. Research into the delivery and effectiveness of post-stroke therapy continues to evolve, but one consistent aspect is the eventual transition of responsibility from the therapist, who initially leads the therapy program, to the client, who becomes responsible for maintaining their therapy regimen. Engaging the family or support system from the outset of therapy can facilitate the achievement of better outcomes for the client. Above all, preventing another stroke remains the most vital consideration (Buvarp et al., 2023).

Health-Related Quality of Life (HRQoL) and Community Reintegration Post-Stroke

Community reintegration is defined as "effective role performance in community settings" and is considered a critical endpoint of rehabilitation and discharge, as well as the most desirable outcome from the perspective of patients. Physical recovery progresses most rapidly within the first three months post-stroke; however, at six months post-stroke, 65% of survivors report physical limitations that hinder community reintegration. Impaired walking endurance and the need for assistive devices are significant barriers to successful reintegration. To stroke survivors, mobility is synonymous with independence, and limitations in walking ability are major contributors to disability, loss of independence, reduced community participation, social isolation, and diminished quality of life (Lui & Nguyen, 2018).

A study conducted in 2017 by Cohen and colleagues examined the relationship between physical performance measures of strength, balance, and mobility at discharge from stroke rehabilitation and subsequent HRQoL and community reintegration at six months post-discharge. While the study was limited by its small sample size, the researchers suggested that the diversity of participant abilities compensated for variability in interests. The primary finding revealed that strength and mobility performance at discharge were predictive of HRQoL and community reintegration six months later. This insight can assist clinicians and therapists in designing personalized therapy programs for stroke survivors. Conversely,

individuals with significant mobility impairments are likely to experience reduced HRQoL, which may predispose them to additional challenges such as depression and social isolation (Cohen et al., 2018).

Health Disparities in the Stroke Population

Stroke is a global health issue, affecting individuals regardless of gender, age, or ethnicity. Studies worldwide aim to prevent stroke-related damage, restore lost functions, and facilitate the reintegration of stroke survivors into their communities with the dual goals of preventing future strokes and maximizing functional recovery.

Identifying populations at higher risk for stroke is a key consideration. Extensive research demonstrates that mitigating risk factors and promoting healthier lifestyles significantly contribute to preventing strokes or subsequent events. Factors influencing stroke risk are categorized as modifiable and non-modifiable. Non-modifiable factors include gender, heredity, race, advancing age, and a history of prior strokes. Modifiable factors encompass dietary habits, cessation of tobacco, recreational drug, and alcohol use, management of diabetes, control of hypertension and other vascular diseases, adherence to prescribed medications, management of atrial fibrillation, and engagement in physical activity. Addressing modifiable factors remains a cornerstone of stroke prevention strategies.

Special Populations: The Elderly

Research on stroke prevention and management in the elderly, particularly those over the age of 85, remains limited. Existing studies emphasize that aging is the most significant non-modifiable risk factor for stroke-related morbidity and mortality (Liu et al., 2021). Older adults constitute over 70% of stroke-related deaths, with 55% to 98% of individuals in this age group having multiple chronic diseases (MCDs) prior to experiencing a stroke. The combination of aging and the prevalence of MCDs contributes significantly to the development of stroke pathogenesis.

Among elderly individuals who have experienced a stroke, hypertension is the most prevalent condition, followed closely by diabetes. Additional conditions commonly associated with stroke in this population include atrial fibrillation and chronic kidney disease. Social isolation is another factor linked to a higher risk of stroke and greater disability in the elderly. Pre-stroke isolation has been shown to result in a 40% higher likelihood of poor outcomes following a stroke. Therefore, interventions aimed at preventing secondary strokes and enhancing rehabilitation should focus on managing MCDs and promoting social engagement programs for the elderly.

Special Populations: Women

Stroke disproportionately affects women, with risk factors and outcomes differing between men and women. A study conducted in 2015 found that among individuals aged 75 years and older, women exhibited a higher prevalence of risk factors such as obesity, hypertension, diabetes mellitus, and dyslipidemias, whereas men in the same age group were more likely to smoke or consume alcohol. Notably, the mortality rate for men at 12 months post-stroke was significantly higher than for women.

While men generally have a higher risk of stroke across most age groups, this risk shifts dramatically at approximately 85 years of age, with elderly women becoming more susceptible. Additionally, women often experience worse outcomes post-stroke, including a higher prevalence of hemorrhagic strokes and greater levels of depression and reduced quality of life compared to men. Women are also more likely to require assistance after a stroke, even when accounting for pre-stroke functional status and advanced age. Given the aging population, women will increasingly comprise a larger proportion of stroke survivors (Hilton, 2002).

The study highlighted disparities in stroke prevention, rehabilitation, and secondary stroke prevention for elderly women. Women in this age group reported greater disability in performing activities of daily living (ADLs) during the acute phase and at 3 to 6 months post-

stroke. Furthermore, they were more likely to be discharged to assisted living facilities or hospices. Depression, a common post-stroke condition, was reported more frequently in women than men. Elderly women often live alone, lacking substantial social support, which increases their likelihood of requiring institutionalized or community care.

Evidence also suggests gender differences in the use of medications for stroke prevention and treatment, as well as variations in responses to rehabilitation. Factors such as hormonal influences, social networks, and comorbidities may contribute to these differences, which are now being increasingly recognized as significant in post-stroke care (Li et al., 2015).

Despite the availability of Medicare and other funded insurance programs that provide rehabilitation therapy for a limited duration, these resources may not cover the entirety of the client's needs. Stroke recovery often involves substantial financial and geographical challenges, particularly for women who must navigate both chronic illnesses and stroke-related disabilities. Many women, who may have considered themselves to be in good health despite managing chronic conditions like hypertension or diabetes, find their lives profoundly altered by the disabilities imposed by a stroke, further complicating their recovery process.

Current Treatment Guidelines for the Elderly Post-Stroke

The management of stroke in clients of any age should encompass a multifaceted approach, including dietary modifications, engagement in physical exercise or rehabilitation to improve mobility and strength, and strict adherence to prescribed medications. Control of hypertension and diabetes is critical, as is cessation of tobacco, recreational drug, and alcohol use. Evaluating clients for depression, behavioral changes, and cognitive impairments is essential for comprehensive care. Additionally, antiplatelet or anticoagulant therapies should be implemented when clinically indicated to prevent further thrombotic events.

Further considerations are essential when managing elderly post-stroke clients. These recommendations are informed by guidelines from the American Heart Association (AHA)/American Stroke Association (ASA) and the American College of Clinical Pharmacy (ACCP), with specific adaptations for the frail elderly population, as summarized below (Bushnell & Colón-Emeric, 2009).

Hypertension: Blood pressure control is generally crucial for all older patients. Careful modifications should be applied to avoid the occurrence of orthostatic hypotension.

Dyslipidemia: Advancing age alone does not inherently increase the risk of severe adverse effects from lipid-lowering therapy. Risks associated with coronary artery disease, intracerebral hemorrhage, myotoxicity, and hepatotoxicity should be assessed. If no contraindications are identified, statin therapy can be initiated as indicated.

Hyperhomocysteinemia: Elevated homocysteine levels are associated with a threefold increase in stroke risk. This condition can be effectively managed with B vitamins. However, current evidence does not support the routine use of vitamin supplements for reducing cardiovascular events or stroke. Additional studies are needed before recommending B12 supplementation for elevated homocysteine levels. Nevertheless, low B12 levels should be addressed to prevent associated complications.

Tobacco Use: Individuals over the age of 75 who smoked at the time of their stroke were more likely than younger individuals to attempt or achieve smoking cessation within three years following the initial stroke. Smoking cessation should be strongly encouraged in these clients.

Diabetes: Diabetes independently elevates the risk of recurrent stroke by nearly 60%. Thus, effective diabetes management remains a cornerstone of secondary stroke prevention.

Antithrombotic Therapy for Transient Ischemic Attack and Non-Cardioembolic Stroke: Aspirin is the standard treatment for secondary prevention of atherothrombotic events, reducing the relative risk of cardiovascular events by 22%. Clopidogrel is an acceptable alternative, although its advantages over aspirin are marginal. The routine combination of

aspirin and clopidogrel is not recommended for secondary stroke prevention. In elderly individuals, especially the oldest-old, the increased bleeding risk should be weighed against the benefits of stroke risk reduction. Generally, the risk-benefit ratio supports the use of antiplatelet therapy for most clients.

Adverse Drug Events: All medications should be adjusted gradually, and adverse effects should be closely monitored when initiating or discontinuing secondary prevention therapies.

Dementia: Stroke increases the likelihood of dementia by a factor of five to six. Regular assessments of cognitive function are recommended post-stroke. Antiplatelet and anticoagulant therapies elevate the risk of hemorrhages in clients with beta-amyloid deposits in the cerebral vasculature. Therefore, brain MRI screening for this condition is advisable before starting such therapies.

Osteoporosis: Stroke exacerbates osteoporosis, particularly on the ipsilateral side, increasing the risk of fractures, especially hip fractures in women. Post-stroke clients should undergo bone mineral density assessments, and osteoporosis treatment should be considered both pre- and post-stroke.

Arthritis: The risks and benefits of prescribing non-steroidal anti-inflammatory drugs (NSAIDs) and Cox-2 inhibitors in older stroke patients must be carefully evaluated. These medications carry a heightened risk of gastrointestinal bleeding, particularly in clients concurrently taking warfarin or aspirin.

Depression: Approximately 34% of stroke survivors are diagnosed with depression, regardless of age or sex. Prompt and appropriate treatment is essential. Selective serotonin reuptake inhibitors (SSRIs) are associated with an increased risk of upper gastrointestinal and perioperative bleeding, especially in clients taking antiplatelet therapy or NSAIDs. Additionally, SSRIs may prolong the effects of warfarin, further increasing bleeding risk. Non-SSRI antidepressants or the use of proton-pump inhibitors (PPIs) or H2 receptor antagonists for gastrointestinal protection may be necessary in these cases.

Discontinuation of Secondary Prevention Strategies: Secondary prevention strategies are sometimes overlooked or discontinued in older stroke clients, despite their importance. Discontinuing unnecessary or non-beneficial treatments requires careful assessment to ensure a clear evaluation of risks and benefits, discussed thoroughly with the client and their family. The risk of secondary stroke is particularly high in the six months following the initial event, and clients may significantly benefit from continued secondary prevention strategies during this period. Discontinuing lipid-lowering therapy in clients with acute coronary syndrome may trigger vascular events and worsen acute stroke outcomes. For clients referred to palliative or hospice care, secondary prevention treatments may be reasonably discontinued unless a recent vascular event has occurred. Frequent falls or gastrointestinal bleeding in clients necessitate a detailed discussion to balance continued treatment risks and benefits (Bushnell & Colón-Emeric, 2009).

The Role of Primary Care

In 2021, the AHA/ASA released a scientific statement addressing the primary care management of adult clients who have experienced a stroke. This document provides primary care providers with a comprehensive summary of current guidelines for post-stroke care, including templates and recommendations for secondary stroke prevention. The authors emphasize the pivotal role of primary care in managing stroke patients, as stroke often results in long-term changes for both the client and their family. For optimal outcomes, it is critical that all providers adhere to the same clinical guidelines (Kernan et al., 2021).

A crucial aspect of care is discussing the impact of the stroke on the client and their support system, as this dialogue informs the success of rehabilitation. The initial visit should include listening to the client's account of their experience and their understanding of the event. It is also vital for the APRN to grasp the pathogenesis of the stroke to facilitate appropriate

management and secondary prevention. At times, not all pertinent information about the client's stroke is available or may be pending further testing. Coordinating with acute care providers and/or neurologists is essential to continue or adjust treatment plans established during the acute phase as the client transitions back into daily life. During the first visit, medication reviews are necessary to ensure that prescribed antiplatelet medications are being taken and that no adverse effects are occurring. Additionally, the client's management of comorbid conditions (MCDs) should be evaluated to confirm adherence to current treatment protocols.

Monitoring for changes in the client's condition between visits is essential for stroke survivors. Functional changes can significantly affect physical, psychological, and social relationships. Approximately 60% of stroke survivors exhibit some neurologic deficits, and 5% to 50% experience moderate disability, necessitating assistance with basic needs and activities of daily living (ADLs).

Complications and unmet needs should be assessed at every visit. These complications may include anxiety, depression, bone fractures, osteoporosis, falls, fatigue, hemiplegic shoulder pain, spasticity, thromboembolism, pressure ulcers, and potential seizures. While some of these issues can be managed in primary care, others may require referral to specialists. Readmissions within 30 days post-stroke are often related to medical, rather than neurologic, problems and could be mitigated by early follow-up evaluations (within 1–2 weeks) after hospital discharge. Socioeconomic challenges that arise due to stroke often come to light in primary care follow-ups. Issues such as limited access to healthcare, food insecurity, and transportation difficulties significantly impact stroke survivors, particularly older adults over 85 years of age and females. Addressing these challenges requires referrals to social workers, who can assist the APRN in supporting clients in decision-making and accessing necessary resources.

Effective care planning requires thorough discussions between the APRN and the stroke survivor and/or caregivers. While the provider may prioritize issues such as hypertension or fall risk, the client might identify concerns such as caregiver support for bathing as more immediate. Collaboration between both parties is crucial for developing a successful care plan. When leaving the primary care office, stroke clients should have a clear care plan to guide their recovery. Clients and their caregivers are ultimately responsible for self-managing care to achieve positive outcomes. This process begins with initial post-stroke discussions and evolves through ongoing education on self-care practices. Clients should be equipped with tools for self-monitoring blood pressure, blood sugar, and weight, as these activities promote self-management and provide positive reinforcement when desired outcomes are achieved. Follow-up appointments should be scheduled based on the client's condition, stability, and progress toward goals.

The optimal period for functional recovery post-stroke has been previously addressed. Three key questions to assess the extent of impairment include: (1) What activities could the client perform before the stroke that they cannot do now? (2) What activities does the client wish to regain? (3) Has the client achieved their full potential?. Responses may be evident during the initial evaluation or may require direct inquiries to the client or caregiver. Fall risk should be assessed at every visit using tools such as the Berg Balance Scale, Morse Scale, Timed Up and Go (TUAG) test, or the 10-meter walk test. Cognitive skills can be evaluated with the Mini-Mental State Examination or the Montreal Cognitive Assessment.

Physical, occupational, and speech therapies are often integral to initial rehabilitation efforts, depending on the degree of disability identified through assessments. Research indicates that stroke survivors respond most strongly to therapy within the first three to six months post-stroke, with slower progress observed thereafter. Providing stroke clients and caregivers with tools and a rehabilitation plan enables continued independent rehabilitative efforts indefinitely.

Primary care settings and APRNs play a critical role in ensuring continuity of care for stroke survivors, supporting their reintegration into the community, promoting self-management, and preventing secondary strokes.

Conclusion

Stroke remains a leading cause of disability and a significant challenge in public health. Advanced practice registered nurses (APRNs) play a pivotal role in post-stroke care, particularly for the elderly population. The multifaceted approach to rehabilitation and secondary stroke prevention involves managing comorbid conditions, addressing physical and psychological changes, and fostering self-management and community reintegration. Nurses, as key providers of primary care, have the opportunity to not only ensure adherence to clinical guidelines but also address socio-economic barriers and individualize care plans through active collaboration with clients and caregivers. By focusing on comprehensive assessments, timely interventions, and client education, nurses can significantly enhance recovery outcomes and improve quality of life for stroke survivors, ensuring that they remain integrated into their communities and reduce the risk of recurrent strokes.

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