Mortality rates following lower limb amputation have been described as unacceptable. Nurses have a vital role in improving pre- and post-operative care.

Caring for patients with lower limb amputation

In this article...

- Concerns about mortality rates after lower limb amputations
- Risk factors for critical limb ischaemia
- How pre- and post-operative care can be improved

Author Deborah Ruff is vascular nurse specialist at Pennine Acute Hospitals Trust.


In 2014 a National Confidential Enquiry into Patient Outcome and Death report examined the care of people requiring lower limb amputation as a consequence of complications associated with vascular disease or diabetes. It suggests that less than half of patients who undergo surgery receive good care. This article summarises the key findings of the report and the implications for nursing practice.

Lower limb amputation (LLA) occurred in around 5,500 people in England in 2009/10 (National Confidential Enquiry into Patient Outcome and Death, 2014); peripheral arterial disease and complications associated with diabetes are the main indications.

In 2010 the Vascular Society of Great Britain and Ireland reported unacceptably high mortality rates after amputation (9-17%) and drew up a set of recommendations to reduce perioperative mortality to <5% by 2015. There has been little progress: in 2014 a 12% mortality rate was recorded by NCEPOD. If the VSGBI aim of <5% is to be met, a wide range of organisational and clinical improvements in the management of these patients is required.

Review of amputation care

NCEPOD (2014) reviewed the care of 628 patients aged over 16 years who underwent major limb amputation due to vascular disease or diabetes between 1 October 2012 and 31 March 2013. The audit revealed less than half of patients undergoing LLA received good care. The report contains 20 recommendations and identifies who is responsible for implementing them. Box 1 outlines recommendations for nurses.

Critical limb ischaemia

Critical limb ischaemia (CLI) occurs when there is reduced arterial blood flow to the legs resulting in rest pain and ulcers or gangrene in one or both legs.

Early identification of CLI, either in primary care by GPs, district nurses, podiatrists and tissue viability nurses, or in secondary care by other specialties is vital. Referral to specialist vascular teams is essential so limb salvage may be attempted. Nurses should ensure they equip themselves with the necessary knowledge and skills to identify CLI. Box 2 outlines the risk factors and key signs and symptoms.

Protocols of care

The NCEPOD audit revealed that less than half of trusts had a written policy in place for the care of people needing LLA. All hospitals should have this or protocols of care that include:

- Referral pathways;
- Development of dedicated multidisciplinary teams;
- Care planning reflecting VSGBI and NCEPOD’s recommendations.

Nurses play a key role in the management of patients requiring LLA and should be involved in developing the policies.

Elective patients

Elective patients should be seen in pre-operative clinics to optimise medical comorbidities and plan post-operative rehabilitation. However, in NCEPOD’s report, only 43% of patients admitted identifying ischaemic ulcers early on can help reduce the need for amputation.
electively were seen in pre-operative assessment clinics. Given 78% of patients in the study had major comorbidities, it was felt that many missed a chance to optimise medical management of their comorbidities.

MRSA screening should be done pre-operatively on all patients having LLA. Pre-operative MRSA increased the risk of MRSA stump infection, re-amputation operatively on all patients having LLA.

Discharge planning
Planning for rehabilitation and discharge should start as soon as the need to amputate is identified. Once a decision has been made to amputate, a prompt referral should be made to occupational therapists, physiotherapists and social work departments. This allows assessments to be done in a timely manner and potentially prevent any delays in discharge due to social circumstances. An occupational therapist can undertake a home assessment before admission, as adaptations to patients’ homes are often required. NCEPOD (2014) noted that more than half of discharges were delayed for non-medical reasons.

Coordinating care
NCEPOD (2014) found that 88% of patients did not have a named individual responsible for coordinating their rehabilitation or discharge planning. Nurses are well placed for this role. There should be written information for patients and their relatives on the whole clinical pathway.

Nutritional assessment
Malnutrition has been linked to higher morbidity and mortality rates. Elective patients should have their body mass index measured at their pre-operative assessment appointment, as a low BMI can indicate malnutrition. Patients assessed to be at risk of malnutrition or with a reduced nutritional intake should be given a healthy-eating guide to improve their nutritional status before surgery and advised to ask their GP to prescribe nutritional supplements.

The National Institute for Health and Care Excellence (2006) also recommends that all hospitalised patients have a nutritional assessment within 48 hours of admission. Only 61% of patients in the NCEPOD report had a pre-operative nutritional score calculated.

Poor nutrition is related to delays in wound healing and higher infection risk. Surgical site infection occurred in 15% of patients in NCEPOD’s report, with wound breakdown occurring in 20%. These complications are linked to prolonged hospital stays and poorer functional outcomes. Once malnutrition has been identified it is vital that local guidelines are followed to help ensure patients’ nutritional status does not deteriorate further. High-risk patients must be referred to the dietician for individualised nutritional assessment and management; lower-risk patients may require simple monitoring, dietary advice and support.

Falls prevention
The risk of falling is greater after LLA. Insensate feet due to neuropathy in diabetes also increases the risk of falling compared with individuals with normal sensation. A falls risk assessment should be done for all patients undergoing LLA, with measures put in place to reduce the risk of falls during the inpatient stay. NCEPOD (2014) found that falls occurred in 33% of patients and 29% had no evidence of a risk assessment having been done.

Pain management
NCEPOD (2014) revealed that 350 patients were admitted with ischaemic rest pain, often complicated with tissue loss and/or gangrene. The symptoms described are often a combination of ischaemic and neuropathic pain. Management is often complex and requires the advice of the pain team pre- and post-operatively. Pain management both pre- and post-operatively could have been “better” (NCEPOD, 2014). Pain significantly impedes patients’ rehabilitation; it limits early physiotherapy/mobilisation and can affect length of stay.

References
National Confidential Enquiry into Patient Outcome and Death (2014) Lower Limb Amputation: Working Together. A Review of the Care Received by Patients who Underwent Lower Limb Amputation due to Vascular Disease or Diabetes. nice.org.uk/CG32

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BOX 1. RECOMMENDATIONS THAT AFFECT NURSES
● All patients should have a named individual who is responsible for the coordination of their rehabilitation and discharge planning
● All patients should have a nutritional assessment within 48 hours of admission
● A falls risk assessment should be done, with measures taken to reduce the risk of falls during the hospital stay

Patients should be screened pre-operatively for MRSA
Referral should be made to the specialist pain team both pre- and post-operatively
Policy/protocol for lower limb amputation should be developed that includes the input from all specialties involved in the patient pathway

BOX 2. CRITICAL LIMB ISCHAEMIA
Risk factors
● Age (men >60yrs; women after menopause)
● Smoking
● Diabetes
● Overweight or obesity
● Sedentary lifestyle
● High cholesterol
● High blood pressure
● Family history of vascular disease

Signs and symptoms
● Severe burning pain in legs and feet
● Leg pain persists at rest
● Skin is pale, shiny, smooth and dry
● Non-healing leg wounds/leg ulcers
● Peripheral neuropathy
● Gangrene of the toes

Source: Vascular Cures (2011)

Diabetes management
More than half of patients in NCEPOD’s report had diabetes; this unsurprising as diabetes is known to be a major risk factor for vascular disease. Pre-operative referral to the specialist diabetes team is needed to optimise diabetes control and management of other medical comorbidities. Hospitals should have clear guidelines to manage blood glucose levels when they fall outside of the normal range.

Conclusion
Patients undergoing LLA are a vulnerable, high-risk group requiring well-organised, highly skilled multidisciplinary care. The NCEPOD report set out 20 recommendations to ensure high standards of care are met to improve patient outcomes. Many of these require a review of the clinical care provided but no additional expenditure.