Renal Foot Care

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• The consequences of poor management of the renal foot are considerable: prolonged ulceration and ill health, gangrene and amputation, depression and death. The health complications are increased with the added complication of co-morbidities, such as diabetes.

• Good management requires close coordination between different health care professions – such coordination is not yet widespread. Reorganisation needs to be implemented to improve health outcomes and reduce costs.

• Dialysis treatment has been independently associated with foot ulceration. The risk factors contributing to foot ulceration in the diabetic population are well published. Most studies and papers available present diabetic patients with kidney disease, demonstrating the acceleration of risk factors in association with diabetic nephropathy, with a consistent message of increased risk of foot ulceration and lower limb complications.
• Diabetes is the most common single cause of established renal failure (Lok et al, 2004. Eggers et al, 1999)

• Chronic kidney disease (CKD) - highly prevalent microvascular complication - 40% of patients with diabetes develop CKD. (De Boer IH, et al. JAMA 2011; 305: 2532–2539)

• People with diabetes are 1.5 times more likely to need renal replacement therapy (RRT) than peers in the general population. (Marshall SM Diab Med 2014 11:1280–1283)

• Carries significant morbidity and mortality (Elinder et al, 1999)

• Associated with poor prognosis. Mortality is highest during the first 3 months of haemodialysis - 27.5 deaths/100 person-years during the first 120 days V 21.9 deaths/100 person-years for days 121–365; p=0.0023. (Ortiz A, Lancet 2014 Vol 383: 1831-1843)

• Principal cause of death is cardiovascular disease (Eggers et al, 1999)
• Higher rate of amputation (up to 30%) of dialysis patients (Morback et al, 2001)

• The annual rate of major and minor amputations is up to 13.8% - Major amputation accounts for more than 58% of the total amputations (Eggers et al, 1999)

• The incidence of limb gangrene and amputation is particularly associated with the commencement of renal replacement therapy (McGrath & Curran, 2000; Morbach et al, 2001; Specman et al, 2004; Jeffcoate et al, 2005)

• High rates of ulceration and amputation are associated with the onset of dialysis (Rith-Najaran, 2000; McGrath, 2000)
Screening the Renal Foot

- Although there is no general agreement on the definition of renal foot, the ‘renal foot’ is a colloquial term often used to refer to patients with stage 4/5 kidney disease. There are 5 divisions of renal failure according to a patient’s glomerular filtration rate (GFR), with patients requiring dialysis who are classed at level 4 or 5.

- The ‘Renal Foot’ is seen as being:
  - Hypoxic
  - Malnourished
  - Complex metabolic changes lead to cachexia, immune paresis & anaemia
  - Charcot is associated with nephropathy
• According to the spectrum, basic foot screening should follow the same principles as those for diabetic patients

• Regardless if the renal patient has a coexisting diagnosis of diabetes or not - It is important to consider that calcification of the vessels applies to diabetic patients and well as non-diabetic patients, with neuropathy also occurring in renal patients due to uraemia

• Carrying out the foot check including the above list would place the patient within a particular risk category (much as NICE recommends for diabetic patients).
• A patient on dialysis attends hospital 3 times a week for 4-5 hours (156 hospital visits per year), during which time they will be resting their vulnerable feet against a vinyl couch and be relatively immobile, putting them at increased risk of pressure sores.

• Patients diagnosed with stage 4/5 renal failure should automatically be considered as being High risk of developing foot complications.

• It is generally considered that all renal patients on dialysis will have neuropathy to some degree (due to uraemia), however it is always good practice to check for this and document it.
• When screening a patient, once neuropathy or ischaemia has been documented, the need to continue to screen for this would not be necessary all of the time as this is not likely to improve, however **INSPECTION IS CRUCIAL AT ALL VISITS.**

• Literature suggests that patients with renal complications are more prone to Charcot Osteoarthropathy (COA). Therefore, patients should always be screened for swelling, heat and any deformity about the foot/ankle complexes.

• Due to the amount a healthcare professional is required to do for patients on dialysis, a quick, easily repeatable foot check is required with a single point of referral in case of any concerns.
• This should happen at the start of dialysis treatment in order to have time to alert the necessary people for a more detailed examination and any subsequent treatment during the time a patient is undergoing dialysis

• If infection is suspected, bloods should be sent for inflammatory markers (including CRP) at the beginning of dialysis. That way, if any IV antibiotics are required to be administered, these can be given through the dialysis line/portal within good time while dialysis is running

• Patients with any diagnosis of renal failure will need to be regularly screened. This includes those who have had renal transplants
• There is a low threshold for error and securing help with complications of the renal foot. Help should always be sought if any new swelling, redness, heat, discoloration, lesions or ulcers are noted.
A best practice document has been drawn up which includes the following:

- Key themes
- Introduction – why is there the problem
- Scale of the problem
- Explain pathology and progression
- Patient empowerment
- Case for change – coalition of services vs current state of play
- 5 processes of care
- Patient education
- Preventable risk of amputation
- Patient should have their foot risk assessed by a knowledgeable professional

Such a document will need to be peer reviewed in order to discover and disseminate best practice from various units, citing centres of excellence of foot care.
Assessment

• For every patient in dialysis, a foot check should be carried out before and after the treatment.

• Each foot check will only take a few minutes to perform.

• Patients need to keep an eye on their feet at home and during their time on dialysis, therefore it is essential to ensure that patients receive a quality foot check from a properly trained person at every appointment and reiteration of foot care advice.

• The risk status of the patient on dialysis should automatically be considered as being High, in the absence of any active foot problems, with a referral for specialist expert advice and treatment if an active problem is discovered during the examination.
• History of foot problems
• Neuropathy
• Ischaemia
• Deformity
• Swelling/Oedema
• Lesions/Infection/Ulcers/Cracks or breaks in the skin
• Discrete areas of necrosis
• Discolouration
• Motor power
All patients with diabetes **MUST** have a foot examination and documented in patient records

| CHECK          | □ Is there an ulcer/gangrene?  |
|               | □ Touch the toes test – is there reduced sensation? |
|               | □ Is action required?        |

| PROTECT        | Use heel protector if at risk |
|               | □ Reduced sensation          |
|               | □ Previous ulcers or amputation |
|               | □ Bed bound or fragile skin  |

| REFER          | ulceration, gangrene or other major concerns. |
|               | Podiatry: Ext                     |
|               | out of hours: on-call medical or vascular reg |
Check, Protect, Refer (CPR)

• The renal and dialysis service should institute standardised foot care CPR for all patients admitted to the renal service.

• **Check**
  When a patient is referred admitted to the team their feet should be checked for:
  – History of foot problems (ulcers or toe/foot pain)
  – Neuropathy – Touch toes test / monofilament
  – Ischaemia – Pulse check
  – Deformity - Inspection
  – Swelling/Oedema - Inspection
Sessional foot checks should involve the following:

Patients should be asked to remove any footwear and socks/stockings.

- Their feet should be examined – including looking for corns, calluses and changes in shape.
- Feet should be tested for numbness or changes in sensation (‘neuropathy’) with a fine plastic strand called a monofilament or a tuning fork.
- Lesions/Infection/Ulcers/Cracks or breaks in the skin (especially cracks between the toes which present as seemingly dry breaks in the skin which are often initially small and are not usually infected immediately)
- Discolouration – indicating the development of severe ischaemia / infection
- Discrete areas of necrosis
- Motor power – motor/focal neuropathy (e.g. foot drop)
Questions should be asked about the patient’s feet and the management of any coexisting medical complication (e.g. diabetes), including:

• Has the patient noticed any problems or changes (e.g. cuts, blisters, broken skin or corns)?

• Has the patient had any previous foot problems or wounds?

• Has the patient experienced any pain or discomfort?

• How often does the patient check their own feet, and what do they look for?

• Has the patient had any cramp-like pains when walking?
• How well is the patient managing any coexisting medical complications (e.g. diabetes)?

• Footwear should also be examined to make sure it is not causing any problems to the feet.

• At the end of the foot check, patients should be told the results and be provided with education regarding their risk of foot problems (verbally and written).
Touch the toes test.
Does your patient with diabetes have reduced sensation?

- Ask the patient to close their eyes
- Tell the patient you are going to touch their toes
- Ask them to tell you which foot you touched, left or right
- Touch toe number 1 for two seconds gently. Do not repeat.
- Continue until you have assessed 6 toes as marked on the diagram.
- If patient cannot feel two or more toes they have reduced sensation and are at risk of a diabetic foot ulcer. Their feet should be checked for ulceration and protected from pressure damage with a heel protector eg Prevalon Boot.

From the 'Ipswich Touch Test' designed by Dr G Rayman and Team from Ipswich Hospital. With the kind permission of Diabetes UK
• **Protect** – If a patient has had a previous foot problem or is at risk of developing a foot problem care should be taken to protect the patient’s feet.

• **Refer** – Patients who have a current foot ulcer and those at high risk of developing a foot ulcer should be referred to the local podiatry or orthotic service. The renal and dialysis service should work the local podiatry services, foot protection teams and foot care MDTs to develop a single point of referral for renal and dialysis patients to access more specialist foot care if needed.
PUTTING FEET FIRST

A footcare pathway for people with diabetes

Annual Foot Review

Foot examination with shoes and socks/stockings removed
- Test foot sensation using 10g monofilament or vibration
- Palpate foot pulses
- Inspect binary deformity
- Inspect ankle movements
- Ask about previous ulceration
- Ask about previous pain

DIABETIC FOOT RISK STRATIFICATION AND TRIGE/IDENTIFICATION OF RISK STATUS

DEFINITION

ACTIVE
- Presence of active ulceration, spreading infection, critical ischemia, gangrene or unexplained hot, red, swollen foot with or without the presence of pain, painful peripheral neuropathy, acute Charcot foot

HIGH
- Previous ulceration or amputation not more than three risk factors present or less than three signs of peripheral vascular disease without callus or deformity

MODERATE (INCREASED)
- One risk factor presenting loss of sensation or signs of peripheral vascular disease without callus or deformity

LOW
- No risk factors presenting no loss of sensation, no signs of peripheral vascular disease and no other risk factors

ACTION

RAPID REFERAL to an experienced practitioner of a foot specialist and treatment plan according to patient needs
- Agree and tailor management/treatment plan for a specialist foot care plan
- Agree and tailor management/treatment plan for a specialist foot care plan
- Annual assessment or 1-3 monthly according to need by a specialist foot care member of a foot protection team

RISK STATUS

High risk
- Risk status should be documented and the patient informed.

Moderate (increased)
- Risk status should be documented and the patient informed.

Low risk
- Risk status should be documented and the patient informed.

These risk categories relate to the use of the SC DOC foot risk stratification tool.

* NICE Guidance

Produced by the Scottish Diabetes Foot Action Group

www.diabetes.org.uk

ADVICE THE PATIENT TO:
- Check their feet every day
- Be aware of loss of sensation
- Look for changes in the shape of their feet
- Not use corn removing plasters or blades
- Know how to look after their toenails
- Wear shoes that fit properly
- Maintain good blood glucose control
- Attend their annual foot review
• Patients need to be provided with information that affected them in their current state and advice to prevent deterioration and “...be provided with the right information at the right time”

• Patients and clinicians wanted information which was:
  – Reflective of the outcome of the foot screening
  – Reliable
  – Valid
  – Relevant
  – Assured
  – Accurate and Up-to-date
  – Clear and easy to read
• Patients and healthcare professionals also advised that the information provided needed to be:

  – Consistent throughout the country, no matter who is performing the screening
  – Endorsed by trusted, reliable and recognised organisations
Process

• A review of all available patient information literature was conducted

• A review of the screening processes employed was also conducted

• New questions were asked of renal patients both with and without a history of active foot problems and patient groups

• These questions were also asked to Health Care Professionals involved in the management of renal patients

• A review of available information from across the country, taking patient and clinician/practitioner views and comments in to consideration
Patient information leaflets include:

- Foot care/protection during dialysis
- Low risk
- Moderate risk
- High risk
- Infected foot
- COA
- Footwear
- Holiday feet
Action

• With consent, the leaflets were reviewed locally before being put forward to local patients, patient groups and practitioners

• Feedback received included:
  - Very good
  - Look good
  - Simple and consistent
  - Straight forward
  - Inform patients of their risk
  - Excellent leaflets
  - Easily readable
  - Patient friendly
Information should include:

- Advice about how to care for the feet – according to the level of risk
- An agreed management/treatment plan
- Emergency contact details
- Immediate referral to a multi-disciplinary foot team when appropriate
- Renal and dialysis services should have a named health care professional responsible for improving access to foot checks and improving quality of foot health for renal patients (‘Foot Champion’).
Information for patients:

• All patients should be encouraged to carry out a daily inspection to look out for…
Damage to the nerves which might be indicated by:

- tingling sensation; pins and needles
- pain (burning)
- sweating less
- hard skin

- feet that are red and hot to touch
- changes to the shape of the feet
- loss of feeling in the feet/legs.

Damage to the blood supply which might be indicated by:

- cramp in the calves (at rest or when walking)
- shiny smooth skin
- cold, pale feet
- pain in the foot/feet
- wounds or sores that do not heal

- loss of hair on the legs and feet
- changes in the skin colour of the feet
- swollen feet.
Outcome Measures:

- Reduce the complications of microvascular disease
- Improve secondary prevention
• If any of these are noticed, or patients have concerns about their feet, advice to make emergency contact with the multi-disciplinary foot care team should be given.
Thank You