Peritoneal dialysis

Clinical case scenarios for healthcare professionals who support people with stage 5 chronic kidney disease

Implementing NICE guidance

July 2011

NICE clinical guideline 125
These clinical case scenarios accompany the clinical guideline ‘Kidney disease: peritoneal dialysis in the treatment of stage 5 chronic kidney disease’ (available online at www.nice.org.uk/guidance/CG125).

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Introduction

Clinical case scenarios are an educational resource that can be used in individual or group learning situations. Each question should be considered by the individual or group before referring to the answer.

These seven clinical case scenarios have been put together to improve and assess users’ knowledge of the role of peritoneal dialysis as a treatment for stage 5 chronic kidney disease (CKD), and its application in practice. They illustrate how the recommendations from the NICE clinical guideline on peritoneal dialysis (NICE clinical guideline 125, available at www.nice.org.uk/guidance/CG125) can be applied to the care of adults, children and infants with stage 5 CKD.

Each case scenario includes details of initial presentation. The clinical decisions surrounding diagnosis are then considered using a question and answer approach that relates to the recommendations in the NICE guideline. However, in practice other factors may be taken into account when considering care for an individual patient; a patient’s care should always be approached holistically.

This tool is available in two formats: this PDF version, which is useful for individual learning, and a PowerPoint slide set to facilitate group learning. Users can add the clinical case scenario slides to the standard ‘awareness raising’ slides produced for the guideline. You will find it helpful to look at the NICE guideline to help you decide what to do in each case scenario, so make sure that copies are available. Relevant recommendations from the NICE guideline are quoted in the text, with their recommendation numbers.

The quick reference guide and NICE guideline can be downloaded from the NICE website (www.nice.org.uk/guidance/CG125). For printed copies of the quick reference guide or ‘Understanding NICE guidance’ (a version of the guideline for patients and carers), phone NICE publications on 0845 003 7783 or email publications@nice.org.uk and quote reference numbers N2600 (quick reference guide) and/or N2601 (‘Understanding NICE guidance’).
Related NICE guidance/products

Clinical case scenarios

Case scenario 1: Katie

Presentation
An ultrasound scan of the fetal kidneys shows an abnormality. Repeated ultrasounds show progressive dilatation of the urinary tract and decreasing fetal urine output (oligohydramnios). The decision is made to insert a vesicoamniotic shunt.
Katie is delivered at term by normal vaginal delivery. She has initial problems with breathing as a result of the oligohydramnios and she needs a short period of ventilation and has a pneumothorax. Urine output is minimal.
After birth, a renal ultrasound test and blood tests are ordered to check urea, electrolytes and creatinine.

Findings
Katie passes inadequate urine and needs dialysis.

Question 1.1
What sort of dialysis would you offer?
**Answer 1.1**

Peritoneal dialysis should be offered.

Young children should be started first on peritoneal dialysis unless there is intra-abdominal disease or the kidneys are so large that it precludes this route. This is because vascular access is difficult to initiate and maintain in small blood vessels.

Because Katie is on a liquid diet, automated peritoneal dialysis (APD) should be offered in preference to continuous ambulatory peritoneal dialysis (CAPD).

<table>
<thead>
<tr>
<th>Offer all people with stage 5 CKD a choice of peritoneal dialysis or haemodialysis, if appropriate, but consider peritoneal dialysis as the first choice of treatment modality for:</th>
</tr>
</thead>
</table>
| • children 2 years old or younger  
• people with residual renal function  
• adults without significant associated comorbidities. [1.1.9] |

For children for whom peritoneal dialysis is appropriate, offer APD in preference to CAPD if they are on a liquid diet, especially if they have low residual renal function. [1.1.12]
Case scenario 2: David

Presentation

David is 8 years old and presents with a long history of polydipsia and polyuria, and the onset of nocturnal enuresis. He is not as large as his younger sibling.

On examination

On examination, David is small, but otherwise well with normal blood pressure. A renal ultrasound is ordered, and blood tests to check urea, electrolytes and creatinine. The renal ultrasound will either show small dysplastic kidneys or normal-sized kidneys possibly with cysts, which is more typical of nephronophthisis.

Management plan

A plan is made to start dialysis.

Question 2.1

What sort of dialysis would you offer?
**Answer 2.1**

A choice of both peritoneal dialysis and haemodialysis should be offered. Although peritoneal dialysis may be considered to be the preferred first treatment modality, emphasise that life-style choices are equally important and try not to influence David’s and his family or carer’s decision about treatment modality. Before starting peritoneal dialysis treatment (if this modality is preferred), David and his family or carer should be offered a choice between CAPD, APD or assisted automated peritoneal dialysis (aAPD) if necessary.

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</tr>
</tbody>
</table>

When discussing choice of treatment modalities, healthcare professionals should take into account that people’s priorities are not necessarily the same as their own clinical priorities. [1.1.10]

Before starting peritoneal dialysis, offer all patients a choice, if appropriate, between CAPD and APD (or aAPD if necessary). [1.1.11]

**Question 2.2**

What information and support should be provided to David and his family/carer?
Answer 2.2

David and his family or carer should be offered oral and written information about pre-emptive transplant and all dialysis modalities so that they can make an informed decision about which treatment option is right for David.

The information should include a detailed description of all treatment modalities including the risks, potential benefits, potential side effects, and the impact of changing treatment modality.

You should also have a discussion about how the treatment will fit into family life. Peritoneal dialysis may be the treatment of choice in this instance because it may fit better with schooling and socialisation.

Offer patients and their families and carers oral and written information about pre-emptive transplant, dialysis, and conservative care to allow them to make informed decisions about their treatment [1.1.2].

To enable patients to make informed decisions, offer balanced and accurate information about all dialysis options. The information should include:

- a description of treatment modalities (aAPD, APD, CAPD, and home or in-centre haemodialysis) including:
  - efficacy
  - risks
  - potential benefits, based on the person’s prognosis
  - potential side effects and their severity
  - changing the modality of dialysis and the possible consequences (that is, the impact on the person’s life or how this may affect future treatment or outcomes)
- a discussion about how treatment fits into people’s lives, including:
  - the patient’s and/or carer’s ability to carry out and adjust the treatment themselves
  - integration with daily activities such as work, school, hobbies, family commitments and travel for work or leisure
  - opportunities to maintain social interaction
  - the impact on body image
- how the dialysis access point on the body may restrict physical activity
- if their home will need to be modified to accommodate treatment
- distance and time spent travelling for treatment
- flexibility of treatment regimen
- any additional support or services that might be needed from others.

[1.1.3]
Case scenario 3: Mohammed

Initial presentation

Mohammed is a 72-year-old man and has been diagnosed with hypertension (blood pressure 184/102). Blood tests show him to have serum creatinine levels of 172 micromol/litre (estimated glomerular filtration rate (eGFR) 36 ml/minute/1.73 m² – stage 3b CKD). Haemoglobin is normal (11.3 g/100 ml). An ACE inhibitor is prescribed. He attends for a couple of review appointments and his blood pressure comes under control. Reassured by this, he is not then seen in the surgery for 18 months.

Return visit

When his blood is next tested, his serum creatinine has risen to 587 micromol/litre (eGFR 9 ml/minute/1.73 m² – stage 5 CKD), haemoglobin has fallen to 8.9 g/100 ml and his serum potassium is 6.5 mmol/litre. He is breathless on exertion and looks unwell. His ACE inhibitor is discontinued but there are no reversible factors for his poor renal function and, after ultrasound confirmation that he had shrunken kidneys, it is decided to recommend dialysis. He initially receives haemodialysis, using a temporary dialysis neckline to treat his breathlessness and hyperkalaemia.

Question 3.1

What are the next steps you would take to ensure Mohammed has been given the right support and choices about his treatment?
**Answer 3.1**

Offer Mohammed and his family information in line with NICE clinical guideline 73 ‘Chronic kidney disease’ (2008). Mohammed should be offered balanced information about all treatment modalities, even though he is currently on haemodialysis, so that he and his family can make an informed decision about which treatment would fit into his lifestyle. As the healthcare professional delivering this information you should have the specialist knowledge and skills to support this decision-making process.

Offer patients with stage 5 CKD and their families and carers information and support in line with ‘Chronic kidney disease’ (NICE clinical guideline 73, 2008).

[1.1.1]

Offer patients and their families and carers oral and written information about pre-emptive transplant, dialysis, and conservative care to allow them to make informed decisions about their treatment. [1.1.2]

Make sure that healthcare professionals offering information have specialist knowledge about CKD and the necessary skills to support decision-making. This may include training in:

- using decision aids to help patients make decisions about their care and treatment
- presenting information to children in a form suitable for their developmental stage, such as play therapies. [1.1.6]

After considering the above information Mohammed decides he would prefer to have peritoneal dialysis at home, and his family is prepared to help.

**Question 3.2**

What are the next steps?
**Answer 3.2**

Mohammed should be offered a choice between CAPD and APD.

**Before starting peritoneal dialysis, offer all patients a choice, if appropriate, between CAPD and APD (or aAPD if necessary). [1.1.11]**

**Outcome**

After three haemodialysis treatments a double-cuff curled Tenckhoff catheter is inserted percutaneously, using the Seldinger technique, under local anaesthesia and mild sedation. Mohammed has sufficient residual renal function for haemodialysis to be discontinued while the abdominal incision is healing, and peritoneal dialysis is started 2 weeks after insertion of the Tenckhoff catheter.
Case scenario 4: Denise

Presentation

Denise is 24 years old and has progressive renal failure that has not responded to several varied courses of immunosuppressive therapy. She finds frequent attendance at hospital very tiresome, and is dreading the need for dialysis.

Denise does not want to have to come to a haemodialysis unit for treatment but is also very concerned by the thought of abdominal distension if treated with peritoneal dialysis.

Question 4.1

How should you approach providing Denise with information, support and choice to help her decide which treatment modality is right for her?
**Answer 4.1**

Information should be delivered in a timely and planned way if possible. In Denise’s case it is important not to overload her with information, whilst at the same time giving her enough information for her to be able to make an informed decision. It is important to explain to Denise that chronic kidney disease is a lifelong disease and that during the course of treatment she is likely to need to switch between treatment modalities.

The information provided should include balanced details of all treatment options (pre-emptive transplant, haemodialysis, peritoneal dialysis and conservative care) and not just information on which treatment modality is readily available or what the healthcare professional thinks would be best. Denise must make the decision.

The healthcare professional providing Denise with information should take into account any information she may have received through other sources, for example from other patients, families and carers. The healthcare professionals responsible for providing Denise with information should be available to discuss the information provided before and after she starts on her choice of dialysis.

Denise should be offered a choice of haemodialysis or peritoneal dialysis. If she chooses peritoneal dialysis she should be offered the choice of CAPD and APD.

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**Explain to patients and check they understand that CKD is a lifelong disease, and that during the course of renal replacement therapy they are likely to need to switch between treatment modalities depending on clinical or personal circumstances. [1.1.4]**

**Offer patients and their families and carers oral and written information about pre-emptive transplant, dialysis, and conservative care to allow them to make informed decisions about their treatment. [1.1.2]**

**When discussing choice of treatment modalities, healthcare professionals should take into account that people’s priorities are not necessarily the same as their own clinical priorities. [1.1.10]**
When providing information about treatment options, healthcare professionals should discuss and take into account any information the patient has obtained from other patients, families and carers and all other sources, and how this information has influenced their decision. [1.1.5]

Trained healthcare professionals (see recommendation 1.1.6 [on page 13 of this document]) should be available to discuss the information provided both before and after the start of dialysis. [1.1.7]

To enable patients to make informed decisions, offer balanced and accurate information about all dialysis options. The information should include:

- a description of treatment modalities (aAPD, APD, CAPD, and home or in-centre haemodialysis) including:
  - efficacy
  - risks
  - potential benefits, based on the person’s prognosis
  - potential side effects and their severity
  - changing the modality of dialysis and the possible consequences (that is, the impact on the person’s life or how this may affect future treatment or outcomes)

- a discussion about how treatment fits into people’s lives, including:
  - the patient's and/or carer's ability to carry out and adjust the treatment themselves
  - integration with daily activities such as work, school, hobbies, family commitments and travel for work or leisure
  - opportunities to maintain social interaction
  - the impact on body image
  - how the dialysis access point on the body may restrict physical activity
  - if their home will need to be modified to accommodate treatment
  - distance and time spent travelling for treatment
  - flexibility of treatment regimen
  - any additional support or services that might be needed from others. [1.1.3]
Offer all people with stage 5 CKD a choice of peritoneal dialysis or haemodialysis, if appropriate, but consider peritoneal dialysis as the first choice of treatment modality for:

- children 2 years old or younger
- people with residual renal function
- adults without significant associated comorbidities. [1.1.9]

Before starting peritoneal dialysis, offer all patients a choice, if appropriate, between CAPD and APD (or aAPD if necessary). [1.1.11]

**Outcome**

After detailed discussions with a specialist renal nurse, Denise feels that treatment with automated peritoneal dialysis overnight with a small volume daytime exchange might be the best option. Having made the decision, she does not want to delay. Because percutaneous insertion of a Tenckhoff catheter can be organised during the admission, whereas surgical insertion could not be done for 2 weeks, she chooses that option. The Tenckhoff catheter is inserted with short-acting oral benzodiazepine sedation and the maximum licenced dose of lidocaine local anaesthesia. She is discharged with arrangements to start peritoneal dialysis 3 weeks later, because she has some evidence of steroid toxicity that could delay healing.
**Case scenario 5: Emma**

**Presentation**

Emma is 81 years old and lives alone on a farm. Her daughter lives close and helps with looking after Emma.

Emma has type 2 diabetes and multiple sclerosis, and uses a wheelchair.

Emma is admitted to hospital with chronic kidney disease stage 5 and is not known to renal services. She starts on haemodialysis, with the intention of eventually receiving treatment from a satellite unit closer to home. At this stage Emma had not been reviewed by a pre-dialysis team.

After 1 month Emma is admitted to hospital. She has hypotensive episodes and is struggling with haemodialysis; her mobility difficulties have made the travelling a problem.

**Question 5.1**

What would be the best plan?
Answer 5.1

Emma should be reviewed by the pre-dialysis team to discuss, and be provided with written information about all the different treatment options. If possible her daughter should be involved in this process.

Offer patients and their families and carers oral and written information about pre-emptive transplant, dialysis, and conservative care to allow them to make informed decisions about their treatment. [1.1.2]

Outcome

After receiving this information and support from the pre-dialysis team, Emma decides to go onto peritoneal dialysis because she feels she would be better on a home treatment.

Question 5.2

What are the next steps?
**Answer 5.2**

Emma should be referred for a peritoneal dialysis catheter to be fitted. She and her daughter should both be provided with contact details for the pre-dialysis team so they can contact them to discuss Emma’s treatment.

**Before starting peritoneal dialysis, offer all patients a choice, if appropriate, between CAPD and APD (or aAPD if necessary) [1.1.11].**

Trained healthcare professionals (see recommendation 1.1.6 [on page 13 of this document]) should be available to discuss the information provided both before and after the start of dialysis [1.1.7].

**Outcome**

It is only possible for Emma to have aAPD. She is discharged from hospital and is trained at home with her daughter.

Emma has been at home for 6 months on aAPD with her daughter connecting and disconnecting her. She has not since been readmitted.
Case scenario 6: Phil

Presentation
Phil is 50 years old and lives with his wife and sons. He has an active lifestyle, a manual job and enjoys holidays. He has IgA nephropathy.

Phil initially starts peritoneal dialysis, and has this for 2 years before he receives a kidney transplant. After 8 years the transplant fails and he requests to go back on peritoneal dialysis. After 2 years on peritoneal dialysis, problems become apparent with adequacy and ultra-filtration. He is generally not doing well but wants to continue to be independent.

Question 6.1
What would be the best plan?
**Answer 6.1**

Because Phil has suffered a loss of ultra-filtration, consider switching him to haemodialysis.

The healthcare professional should sensitively discuss the efficacy of both modalities at this stage and within Phil’s clinical circumstances. Phil should be given oral and written information and there should also be a discussion about how this switch in treatment may affect future treatment options. The approach to the switch in treatment should be planned.

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**Do not routinely switch patients on peritoneal dialysis to a different treatment modality in anticipation of potential future complications such as encapsulating peritoneal sclerosis. However, healthcare professionals should monitor risk factors such as loss of ultrafiltration and discuss with patients regularly the efficacy of all aspects of their treatment.** [1.1.9]

When considering switching treatment modality, offer information on treatment options described in recommendations 1.1.1–1.1.8. This should also include how any decision to switch may affect future treatment options. [1.1.11]

Switching between treatment modalities should be planned if possible. [1.1.12]

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**Outcome**

Phil is referred for fistula and is started on home haemodialysis successfully. He continues with his active lifestyle.
Case scenario 7: Robeena

Presentation

Robeena is a 54-year-old woman who is married with three children. She does not work. She has stage 5 CKD, hypertension, and chronic pyelonephritis (sp).

Robeena is admitted to hospital with stage 5 CKD and a chest infection after attending a clinic. She has presented late in the chronic kidney disease care pathway as she has presented with stage 5 CKD. She does not require urgent dialysis (within the first few days of admission).

Question 7.1

What are the next steps?
**Answer 7.1**

Robeena should be seen by the pre-dialysis team on the ward. The same information, support and choices should be given to Robeena as those given to people presenting earlier in the care pathway.

The pre-dialysis team should offer balanced written and oral information about all treatment options.

Offer patients and their families and carers oral and written information about pre-emptive transplant, dialysis, and conservative care to allow them to make informed decisions about their treatment [1.1.2].

Offer all patients who have presented late, or started dialysis treatment urgently, an enhanced programme of information, at an appropriate time, that offers the same information and choices as those who present at an earlier stage of chronic kidney disease [1.1.8].

**Outcome**

Robeena decides that she would like to have peritoneal dialysis treatment and an urgent peritoneal dialysis catheter insertion is arranged. Robeena is discharged after 10 days and attends the CAPD unit for some time. Robeena begins training and within a week changes onto APD.
Other implementation tools

NICE has developed a range of tools to help organisations implement this guideline, which can be found on the NICE website (www.nice.org.uk/guidance/CG125).

- Costing report – summarises the national estimate cost and discusses the assumptions made when estimating the financial impact of implementing the guideline.
- Costing template - to calculate the local savings associated with implementing this guideline.
- Baseline assessment tool – to help review current practice and plan activity needed to meet recommendations.
- Awareness raising slide set - provides a framework for discussion with a variety of audiences and can assist in local dissemination of the guidance.
- Podcasts – a podcast is a piece of audio, usually in the form of an MP3 file that is available on the internet for you to listen to at your convenience. Two podcasts are available:
  - How to provide the correct information, support and choices to patients presenting late or who need treatment urgently.
  - How switching treatment modalities should be approached.
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- Helen Hurst, Advanced Nurse Practitioner, Manchester Royal Infirmary

Who all helped to write these cases.