PD CATHETER EXIT SITE INFECTION

University Hospitals of Leicester NHS
NHS Trust

Renal, Respiratory, Cardiac and Vascular CMG
Trust Ref: C22/2003

1. Introduction

Exit site infection (ESI) is a common complication of peritoneal dialysis. Commonly it is caused by Gram positive skin organisms, and generally it can be treated by oral antibiotics. However in a proportion of patients the condition progresses to infection of the catheter tunnel or PD peritonitis. Patients with these complications risk catheter removal or other serious complication.

2. Scope

Clinical guidelines are 'guidelines' only. The interpretation and application of clinical guidelines will remain the responsibility of the individual practitioner. If in doubt consult a senior colleague or expert.

These guidelines are applicable to patients directly under the care of University Hospitals of Leicester NHS Trust. Local guidance (for example for the inpatient care of kidney patients not in a Leicester hospital) may also exist and take precedence.

3. Recommendations, Standards and Procedural Statements

3.1 Assessment

3.1.1 Inspection

Exit site and/or tunnel is inflamed and would exude pus. The ISPD grading scale should be used to allow audit of ESI incidence and severity. This can be recorded in proton on the "Exit Site" screen.

Exit site grading system

	0 point	1 point	2 points
Swelling	No	<0.5cm	>0.5cm
Crust	No	<0.5cm	>0.5cm
Redness	No	<0.5cm	>0.5cm
Pain	No	slight	severe
Drainage	No	serous	purulent

3.1.2 Microbiology

Check fluid and if cloudy send a bag for microscopy and culture. See Separate guidelines on the diagnosis and treatment of PD peritonitis. Swab site for culture.

3.2 Initial Treatment

3.2.1 If there is erythema with no discharge topical treatment with mupirocin qds for 5 days may be appropriate treatment.

3.2.2 Daily exit site care is recommended with ESI

3.2.3 If there is clinical infection with discharge, but the patient is well with no evidence of tunnel infection or peritonitis then empirical oral antibiotic treatment is required.This would typically be with flucloxacillin (500mg QDS) or doxycycline (200mg daily for one dose, then 100mg daily) if penicillin allergic.

3.2.4 Where there is a history of previous MRSA or pseudomonal infection, consider treating empirically with appropriate antibiotics until culture results are available. Discuss with a senior clinician or the microbiologist.

3.2.5 If there is clinical evidence of tunnel infection (erythema, warmth and tenderness overlying the tunnel PD catheter), or the patient is systemically unwell then consider IV antibiotics. Patient may require admission and will certainly need early review (48 hours).

3.3 Subsequent treatment

Once the surface swab result is available the empirical treatment must be reviewed to adjust therapy

3.3.1 Gram positive organisms and clinical improvement - Continue initial antibiotics

3.3.2 Gram negative organisms – change to appropriate antibiotics (unless already prescribed empirically as in 3.2.3). This would typically be oral ciprofloxacin (250mg BD).

3.3.3 Review patient after 5-7 days and then as required (home nurse or ward attendance as appropriate). The routine care of the exit site must be reviewed with the patient. Current ISPD guidance recommends treating ESI for at least 2 weeks, except for pseudomonal infections and tunnel infection, where 3 weeks of treatment is recommended.

3.3.4 In persistent or recurrent gram-positive infection,

- Arrange nasal swabs and treat with topical nasal Mupirocin if colonised.
- Consider patient's compliance with treatment
- Consider adding alternative antibiotics and consult microbiology
- Arrange a further clinical review to exclude occult/ persistent tunnel infection.

3.3.5 If swab culture results are negative and there remains a strong suspicion of persistent ESI, reswab and discuss with the microbiologist to consider extended cultures.

3.4 INDICATIONS FOR PD CATHETER REMOVAL

All cases are to be discussed first with senior clinician.

3.4.1 Refractory ESI – defined as persistent infection despite 3 weeks of effective antibiotics

3.4.2 Fungal ESI - Arrange senior review to discuss removal of PD catheter and appropriate antifungal treatment guided by microbiology.

3.4.3 ESI that progresses to PD peritonitis

4 **Education and Training**

Medical staff from nephrology and transplant service and nursing staff (ward nurses, haemodialysis nurses and renal community team) should be familiar with guideline and access it for specific advice on dosing.

5 **Monitoring and Audit Criteria**

6 **Legal Liability Guideline Statement**

Guidelines issued and approved by the Trust are considered to represent best practice. Staff may only exceptionally depart from any relevant Trust guidelines and always only providing that such departure is confined to the specific needs of individual circumstances. In healthcare delivery such departure shall only be undertaken where, in the judgement of the responsible healthcare professional' it is fully appropriate and justifiable - such decision to be fully recorded in the patient's notes

7 **Supporting Documents and Key References**

Key Performance Indicator	Method of Assessment	Frequency	Lead
Audit of exit site infections	Infection rate and types of organisms	Annual	PD leads

Keane, W.F., *et al.*, *Adult peritoneal dialysis-related peritonitis treatment recommendations: 2000 update.* Peritoneal Dialysis International, 2000. **20**(4): p. 396-411.

Renal Association National service standards document version 4.

Nottingham Guidelines for the diagnosis and treatment of PD Exit site infections Dr S Soo October 2008

Szeto CC et al. ISPD Catheter related infection recommendations:2017 update. Peritoneal Dialysis International 2017;37(2):141-154

8 **Key Words**

Peritoneal dialysis, PD, Exit site infection

DEVELOPMENT AND APPROVAL RECORD FOR THIS DOCUMENT		
Author / Lead Officer:	James Medcalf	**Job Title:** Consultant Nephrologist
Reviewed by:	Nephrology Consultants	
Approved by:		**Date Approved:**

			REVIEW RECORD
DATE	**ISSUE NUMBER**	**REVIEWED BY**	**DESCRIPTION OF CHANGES (IF ANY)**
05/05/05	1	Dr Medcalf	
March 2009	2	Dr Medcalf, Dr SS Bukhari	
May 2010	3	Dr J Medcalf, Dr SS Bukhari	3.2 Change in recommended antibiotics from Cefalexin or Erythromycin to Flucloxacillin or Doxycycline 3.4.2 Duration of Ciprofloxacin reduced from 5 to 7 days 4.1 Persistent Gram positive infection antibiotic duration clarified, duration of Rifampicin reduced from 6 to 2 weeks
July 2011	4	Dr J Medcalf, Dr SS Bukhari	No changes
July 2013	5	J Medcalf, S Bukhari	Antibiotic guidance moved to separate guideline RT0001
Sep 2015	6	J Medcalf	New template
Dec 2018	7	O Iyasere	ISPD grading scale included
Sept 2022	8	O iyasere	Statement on exit site care , suggested dosing regimen for flucloxacilin and ciprofloxacin added and intervention when swab results persist