My Patient has Cellulitis – are they suitable for OPAT?

You have decided that your patient is suitable for OPAT based on standard criteria. Now you must determine that your patient's condition is suitable for OPAT.

Cellulitis is a condition characterized by features of superficial skin infection associated with systemic upset. Typically the patient presents with an erythematous swollen area of skin, usually with systemic upset of fevers, generally unwell, to varying degrees of severity. It is clinically important to distinguish cellulitis from other forms of skin and soft tissue infection e.g. necrotising fasciitis. Eron LJ (2000) devised a classification system of skin and soft tissue infections to aid diagnosis and treatment and this is a useful tool in determining whether a patient is suitable for discharge home to an OPAT programme. Essentially if a patient is either Class 1 or 2, they may be candidates for OPAT, however many of these patients will respond to oral antibiotics. If they fail to do so, and depending on the clinical severity of the infection, in conjunction with the assessment by the treating physician, will determine whether iv antibiotics are required.

Patients who are in class 3 or 4 are not initially candidates for OPAT, but may become candidates for OPAT during the course of their hospitalization after an initial period of stabilization.

Class 1 patient neither have any features of systemic infection nor any of the co-morbidities listed below.

Class 2 patients either

Are systemically affected i.e. temp >37.9C or are vomiting

Or

Have one or more comorbidities i.e.

- Peripheral vascular disease
- Treated diabetes or BM >11
- Chronic venous insufficiency
- Morbid obesity (BMI>40)
- Liver cirrhosis

Class 3 patients either

Are clinically unstable e.g. have

- Acutely altered mental state
- Heart rate >100/min
- Respiratory rate >20/min
- Systolic BP <100mmHg

Or

Have unstable comorbidities i.e.

- Uncontrolled Diabetes
- Varicose ulcer
- Peripheral vascular disease with critical ischaemia

Or

- The infection is affecting the face or hand
- The infection is the result of a bite
- There is any evidence/suspicion of a foreign object present
- The infection is rapidly worsening
- The infection is overlying a joint and there is a concern for a septic arthritis
- The patient is an active IVDU

Class 4 patients have a systolic BP <90mmHg or other features of severe sepsis or life threatening infection, such as **necrotizing fasciitis**. Please refer to the National Early Warning Score for further assessment of critically unwell patients.

Necrotising fasciitis is a deep-seated soft tissue infection involving the deep fascia tissue, that typically presents initially with a systemically unwell patient and a rapidly evolving skin infection. Early in the course of the infection the external skin findings may be not as significant as expected given the severity of pain and systemic upset. However very quickly, the infection spreads and the systemic signs of inflammation worsen rapidly with hypotension, tachycardia, significant leukocytosis, and multiorgan failure. The affected region typically becomes mottled and bullous, with crepitus and gangrene evident as a very late finding. This is usually a clinical diagnosis although a plain film may demonstrate air bubbles, and an MRI is the most useful radiological investigation. Urgent assessment by plastic syrgery or general surgery in addition to broad spectrum antibiotics as per your hospital's protocol are required immediately.

What Antibiotics should I give to my patient with cellultis receiving OPAT and how long should they receive OPAT?

You have assessed your patient and you are happy that they are suitable for OPAT. The following are recommendations from the IDSI (infectious Diseases Society of Ireland) are for the treatment of cellulitis in an OPAT setting. The determining factors are good antibiotic stewardship, ease of use, penicillin allergy and known previous microbiology results. The typical duration of therapy for cellulitis should be 10-14 days, but iv antibiotics should be discontinued and changed to po antibiotics once there is a significant clinical improvement in the condition, which is typically at 3-4 days. This change must only happen after a clinical assessment in the OPAT clinic.

Penicillin allergy

Please ensure that any allergy history is recorded carefully and accurately. If there is any doubt please try to contact the patients' GP or pharmacy to determine their antibiotic exposure recently. Many patients who report a 'penicillin allergy' have often received a penicillin-type antibiotic from their GP or a hospital in the recent past unknown to themselves, so an accurate history is critical.

For patients who have a history of a Type 1 Hypersensitivity reaction to a penicillin i.e. urticaria, anaphylaxis, significant rash immediately after taking penicillions, they should not be rechallenged with a penicillin or a cephalosporin.

For those patients with a Non-type 1 Hypersensitivity reaction to penicillin i.e. a mild rash, or a rash >72hours after the antibiotic started, they can be rechallenged with a cephalosporin. Obviously symptoms of GI upset etc… are not considered to be an allergic reaction.

For the patient with no history of a penicillin allergy (please refer to section on OPAT website on penicillin allergy)

- Prescribe Cefazolin 2grms once daily iv with Probenacid 1grm once daily po
- If the patient is unable to tolerate the once daily regimen due to GI upset, then prescribe Cefazolin 2grm twice daily iv without the probenacid.
- If your patient has chronic renal failure, there is no need to dose adjust.
- The first dose should be given in the hospital setting.
- The patient needs a weekly review while receiving OPAT and/or the end of OPAT treatment.

For the patient with a significant penicillin allergy (please refer to OPAT website on penicillin allergy)

- Prescribe vancomycin 15-20mgs/Kg bid to start or Daptomycin 4mgs/Kg iv once daily.
- Patients who are prescribed vancomycin will need TDM, especially for patients who are morbidly obese, have renal impairment, and those with significant deep-seated infections. These patients should not be discharged home on vancomycin until you are aware that they have a therapeutic trough level.
- If your patient has chronic renal failure, prescribe vancomycin 1grm once daily initially and discuss with your hospital pharmacist/OPAT team/Microbiologist regarding ongoing dosing.
- Consult with the OPAT nurse regarding obtaining a vancomycin trough level before the fourth dose. You should be aiming for a trough level between 15 and 20.
- The **antibiotic must not be withheld** pending this result.
- For more information on TDM of Vancomycin see protocol under the HELP section.
- The prescribing physician must ensure that this result is acted upon so that TCP/Fannin know what strength dose to make for the patient's next dose.
- The first dose must be given in the hospital setting.
- The patient needs a weekly review while receiving OPAT and/or the end of OPAT treatment.
- While receiving vancomycin the patient must have weekly FBC, U&E, LFTs and weekly TDM once stable. See section on monitoring of patient on OPAT for further details.

For the patient with a known history of MRSA infection, it is important to remember that there are several MRSA antibiotics that are appropriate to be given orally initially and that have excellent bioavailability e.g. doxycycline, clindamycin, rifampicin, ciproxin. Please discuss with your local Infectious Diseases/OPAT team or your Microbiologist for further advise. If however iv antibiotics are necessary

- Prescribe vancomycin 15-20mgs/Kg bid to start
- If your patient has chronic renal failure prescribe vancumycin 1grm once daily initially and discuss with your hospital pharmacist regarding ongoing dosing.
- Consult with the OPAT nurse regarding obtaining a vancomycin trough level before the fourth dose.
- The **antibiotic must not be withheld** pending this result.

- The prescribing physician must ensure that this result is acted upon so the OPAT company know what strength dose to make for the patient's next dose.
- The first dose must be given in the hospital setting.
- The patient needs a weekly review while receiving OPAT and/or the end of OPAT treatment.
- While receiving vancomycin the patient See section on monitoring of patient on OPAT for further details.