



Nijmegen Institute for  
Infection, Inflammation  
& Immunity

# Interactive case study

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## Once upon a time...

- you were having dinner with a urologist. He is on call. During the soup, he has to answer his telephone. It is about a 72 year-old male who underwent prostatic surgery that morning, and who now having a high fever (and chills) and signs of sepsis.
- He tells the resident to start the patient the usual antibiotic treatment with Superpenem®. After the phone call (you have finished your soup), he asks whether you would agree with the treatment.



# While he is eating his snails,

- you say that you wonder whether Superpenem® being a last resort drug should be used for such a simple urosepsis.
- You say that you even wonder whether Superpenem® has the optimal spectrum towards enterococci and Pseudomonas species





## Waiting for the lobster,

- he tells you that formerly they would treat all these patients with ciprofloxacin, but more and more patients appeared to have 'these nasty cipro-resistant bugs'. They even encountered a few deaths...
- What would you like to know?





## While he pours the Chablis,

- you ask him whether these patients have been exposed to cipro before they are being operated...
- He responds that that is indeed the case. You propose that you will come by next morning to study the charts of these patients that suffered from cipro-resistant microorganisms...
- How would you proceed?



## The next morning...

- you start looking at the chart of the patient who was given Superpenem the night before.
- While you are reading the chart, the urological resident receives a call that another patient on the ward has a positive blood culture with a *Candida* spp.



'Not again!'

- the resident exclaims...  
He tells this is the 3<sup>d</sup> patient with a Candida in the blood in the last 4 months.
- What would you like to know?



## Indeed,

- all three cases were on a prolonged course of Superpenem
- When you ask what he means by prolonged he tells you these were very complicated cases that received more than 3 weeks of Superpenem®





## Nosocomial fungaemia: a 2-year prospective study.

- 68 consecutive patients with fungaemia were studied during a period of 2 years, 81% had two or more positive blood cultures. Gastrointestinal tract (28%) and haematological diseases (17%) were the most common underlying conditions. The majority of cases had received vancomycin and/or imipenem (87%) and a central venous catheter (78%). *Candida albicans* (50%) and *Candida parapsilosis* (17%) were the most frequent isolates.

Costa et al. J Hosp Inf 2000

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of Septic Complications  
in Severe Acute Pancreatitis

**Early antibiotic treatment (prophylaxis)  
of septic complications in severe acute  
necrotizing pancreatitis: a prospective,  
randomized, multicenter study comparing  
two regimens with imipenem-cilastatin**

Infection by *Candida albicans*  
occurred in 7% of patient treated for  
14 days and 22% of patients treated  
longer



## While you are still there,

- a sales representative of MaxiPharm comes in and offers the resident a trip to a meeting on 'Superpenem in serious infection' which will take place in Ibiza in May...
- ' By the way doc, if you are also interested, I could see what I can do for you...'
- What is your response?





## You return to the chart,

- and find out that the patient presented with lower urinary tract complaints and had a high PSA in whom it is hard to tell whether it is chronic prostatitis or cancer. For that reason he was treated with ciprofloxacin 500 mg bid for 6 weeks about 2 months ago. The PSA did not fall.



## Some weeks later,

- The patient underwent prostatic biopsies, for which he received 3 days of ciprofloxacin prophylaxis...
- A small prostatic cancer was found, and that was the reason to operate him yesterday, again under ciprofloxacin prophylaxis...
- What would you do next?



## You decide to

- review the charts of the last 10 patients that were treated with Superpenem
- You ask the Medical Microbiology lab for the positive blood cultures over the past 6 months
- You ask the pharmacy for the deliveries of Superpenem over the past 6 months



## In the meantime...

- Escherichia coli Bloodstream Infection After Transrectal Ultrasound-Guided Prostate Biopsy: Implications of Fluoroquinolone-Resistant Sequence Type 131 as a Major Causative Pathogen. Williamson DA, et al CID 2012 54:1406
- Bacteriuria and antibiotic resistance in catheter urine specimens following radical prostatectomy. Banks JA, et al Urol Oncol. 2012 Jan 25. [Epub]
- Prevalence of Antibiotic Resistance in Fecal Flora of Patients Undergoing Transrectal Ultrasound-Guided Prostate Biopsy in Thailand. Siriboon S, et al. Urol Int. 2012 88:187.
- Ciprofloxacin-resistant infection after transrectal ultrasonography-guided prostate biopsy: should we reassess our practice? Ismail M, et al BJU Int. 2011 108(3):305.
- Fluoroquinolone-resistant acute prostatitis requiring hospitalization after transrectal prostate biopsy: effect of previous fluoroquinolone use as prophylaxis or long-term treatment. Ekici S et al Int Urol Nephrol. 2012;44:19
- Long-term fluoroquinolone use before the prostate biopsy may increase the risk of sepsis caused by resistant microorganisms. Akduman B et al. Urology 2011;78:250



## You find

- all 10 patients were males previously exposed to ciprofloxacin for weeks (and often repeatedly).
- The blood cultures reveal mostly ciprofloxacin resistant E coli (12 x in 9 patients); many of these were susceptible to 2nd gen cephalosporins. There was one culture with Klebsiella (cipro R) and indeed 3 patients with positive cultures for Candida spp.





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and

- a high expenditure on Superpenem®

So what are you going to do now?

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# Discuss with the urologists:

- Rethink longterm ciprofloxacin in patients with high PSA
- Rethink cipro prophylaxis for prostatic biopsies and surgery
- Rethink empiric treatment for postoperative urosepsis
- Regard Superpenem as a last resort drug