Acute male urinary tract infection (UTI): prostatitis… what else?

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Déclaration d’intérêts de 2013 à 2016

• Aucun lien d’intérêts en rapport avec cette présentation
Male UTI: prostatitis…

1/ 60 years old, frequency, acute dysuria, 38°C, **tender prostate** at digital rectal examination (DRE)

2/ 60 years old, frequency, acute dysuria, 38°C, **lumbar pain**, normal prostate at DRE

3/ 60 years old, 37°C, frequency, **no lumbar pain, no prostatic pain** at DRE

Evidence-based care of these patients?
Male UTI: prostatitis...

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

- **Diagnosis**: acute bacterial prostatitis
- **Differential diagnosis**: almost none

<table>
<thead>
<tr>
<th>NIH classification</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>I:</td>
<td>Acute bacterial prostatitis</td>
</tr>
<tr>
<td>II:</td>
<td>Chronic bacterial prostatitis</td>
</tr>
<tr>
<td>III:</td>
<td>Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS)</td>
</tr>
<tr>
<td>IIIa:</td>
<td>Inflammatory CPPS³</td>
</tr>
<tr>
<td>IIIb:</td>
<td>Non-inflammatory CPPS³</td>
</tr>
<tr>
<td>IV:</td>
<td>Asymptomatic inflammatory prostatitis</td>
</tr>
</tbody>
</table>

Male UTI: prostatitis…

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

- **Rapid urine test** (leukocytes or nitrites):

  → no differential diagnosis → high pretest likelihood

  → high PPV       low NPV         (vs high NPV in female UTI)

<table>
<thead>
<tr>
<th>Finding</th>
<th>Sensitivity, %</th>
<th>Specificity, %</th>
<th>PPV, %</th>
<th>NPV, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leukocyte detection</td>
<td>81</td>
<td>71</td>
<td>89</td>
<td>57</td>
</tr>
<tr>
<td>Nitrite detection</td>
<td>55</td>
<td>94</td>
<td>97</td>
<td>42</td>
</tr>
<tr>
<td>Leukocyte and nitrite detection</td>
<td>50</td>
<td>97</td>
<td>99</td>
<td>40</td>
</tr>
<tr>
<td>Leukocyte or nitrite detection</td>
<td>87</td>
<td>69</td>
<td>89</td>
<td>65</td>
</tr>
</tbody>
</table>

Etienne M. Clin Infect Dis. 2008 Mar 15; 46(6) 951-3
1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

**Epidemiology:** heterogeneous data depending on microbiological diagnosis criteria/community vs healthcare…

- more diverse ($E. coli$<70%, $Enterococcus$ spp. and $Pseudomonas$ spp. ≥10%) than in female UTI

Epidemiology not predictable ➔ urine culture mandatory

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

Epidemiology of resistance: few data, highly depending on: community vs healthcare
- more resistance (FQ>15%, CoT>20%) compared to female UTI

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Bacteriological results of urine cultures

<table>
<thead>
<tr>
<th></th>
<th>Total patients</th>
<th>Community-acquired AP</th>
<th>Nosocomial AP</th>
<th>Community-acquired versus nosocomial AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 371</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine culture</td>
<td>347 (94%)</td>
<td>271 (92%)</td>
<td>76 (100%)</td>
<td></td>
</tr>
<tr>
<td>Isolated strains</td>
<td>270</td>
<td>213 (79%)</td>
<td>57 (21%)</td>
<td></td>
</tr>
<tr>
<td>E. coli</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All types</td>
<td>157 (58%)</td>
<td>142 (68%)</td>
<td>15 (26%)</td>
<td></td>
</tr>
<tr>
<td>Ampicillin-S</td>
<td>95 (61%)</td>
<td>88 (62%)</td>
<td>7 (50%)</td>
<td>0.4</td>
</tr>
<tr>
<td>Nalidixic acid-S</td>
<td>119 (76%)</td>
<td>110 (78%)</td>
<td>9 (57%)</td>
<td>0.2</td>
</tr>
<tr>
<td>Ofloxacin-S</td>
<td>130 (83%)</td>
<td>120 (85%)</td>
<td>10 (64%)</td>
<td></td>
</tr>
<tr>
<td>Cotrimoxazole-S</td>
<td>122 (78%)</td>
<td>115 (81%)</td>
<td>7 (43%)</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Higher resistance rates ➔ urine culture mandatory
Male UTI: prostatitis...

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

FQ treatment duration:
- Randomized therapeutic for FQ: CIP 14d vs 28d: 14d enough?

<table>
<thead>
<tr>
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<th>Ciprofloxacin 500 mg b.i.d.</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2 weeks</td>
</tr>
<tr>
<td></td>
<td>( n = 38 )</td>
</tr>
<tr>
<td>Clinical cure rate</td>
<td></td>
</tr>
<tr>
<td>2 weeks post-treatment</td>
<td>( n = 38 )</td>
</tr>
<tr>
<td>Cure</td>
<td>35 (92)</td>
</tr>
<tr>
<td>After 3 months</td>
<td>( n = 36 )</td>
</tr>
<tr>
<td>Cure</td>
<td>30 (83)</td>
</tr>
<tr>
<td>After 12 months</td>
<td>( n = 32 )</td>
</tr>
<tr>
<td>Cure</td>
<td>23 (72)</td>
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</tbody>
</table>

Ulleryd P. Scand J Infect Dis. 2003 Jan
1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

FQ treatment duration:
- 85 male patients with FEBRILE UTI (in a cohort of 200 male and female patients)
- Initial IV Rx, followed by CIP 500bid, randomized 7d (n=44) or 14d (n=41)
- similar patients
- clinical cure rate $7j = 86\% < 14j : 98\% (-11.2\%)$ p<0.01

- FQ: 1 week enough for patients without severe urologic underlying disorder ?
  (Prostashort, Dr Lafaurie-Paris)

Male UTI: prostatitis...

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

- Treatment failure
  - high rates!
  - bacteriologic relapse (20-30%)

symptoms of chronic prostatitis (10-15)
- 437 patients with acute prostatitis
- followed 2y
- 52 (11.8%) developed chronic symptom

Table IV. Cumulative bacteriological cure rate (%)

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<td>2 weeks (n = 38)</td>
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<td>Bacteriological cure</td>
<td>34 (89)</td>
</tr>
<tr>
<td>After 3 months</td>
<td>n = 36</td>
</tr>
<tr>
<td>Bacteriological cure</td>
<td>27 (75)</td>
</tr>
<tr>
<td>After 12 months</td>
<td>n = 32</td>
</tr>
<tr>
<td>Bacteriological cure</td>
<td>19 (59)</td>
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Ulleryd P. Scand J Infect Dis. 2003 Jan

Male UTI: prostatitis

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

- Treatment failure
  - risk factors


-> 7d... not the treatment duration
Male UTI: prostatitis...

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at DRE

-Areas of uncertainty for acute bacterial prostatitis:
  - alternatives to fluoroquinolones and “difficult-to-treat pathogens”
    (ESBL, Enterococcus spp, Pseudomonas spp....)

no therapeutic study on acute bacterial prostatitis studies mixing men and women
→ “according to spectrum and prostate diffusion”

- optimal treatment duration?

- underlying urological disorder (functional/anatomic)
→ who to investigate? how?

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Prostate/sérum (%)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>amoxicillin</td>
<td>60-75</td>
<td>Prostate, 1980</td>
</tr>
<tr>
<td>amikacin</td>
<td>25</td>
<td>Lorian, 2014</td>
</tr>
<tr>
<td>temocillin</td>
<td>75</td>
<td>Acta Clin Belg. 1989</td>
</tr>
<tr>
<td>meropenem</td>
<td>15</td>
<td>Int J Antimicrob Ag. 2013</td>
</tr>
<tr>
<td>trimethoprim</td>
<td>117</td>
<td>Lorian, 2014</td>
</tr>
<tr>
<td>sulfamethoxazol</td>
<td>10</td>
<td>Lorian, 2014</td>
</tr>
<tr>
<td>ciprofloxacin</td>
<td>200</td>
<td>Lorian, 2014</td>
</tr>
<tr>
<td>fosfomycine</td>
<td>75</td>
<td>Clin Inf Dis 2014</td>
</tr>
<tr>
<td>nitrofurantoin</td>
<td>&lt;10</td>
<td>Lorian, 2014</td>
</tr>
</tbody>
</table>

Breen DP. Family Physicians Inquiries Network; 2007 Au
Male UTI: prostatitis...

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at digital rectal examination (DRE)

2/ 60 years old, frequency, acute dysuria, 38°C, lumbar pain, normal prostate at DRE

3/ 60 years old, 37°C, frequency, no lumbar pain, no prostatic pain at DRE
Referring to the guidelines on UTI…
- IDSA: UTI in women, catheterized patients
- EAU: prostatitis, epididymitis, “7d FQ treatment for young male with uncomplicated cystitis”
- NICE: no guideline
- French: “male UTIs are not limited to prostatitis but all should be treated like prostatitis”

…even some confusing literature

Regarding UTI… MAN=PROSTATE?

→ Should pyelonephritis and cystitis be considered in male UTI?

SPILF. 2015 Guidelines on diagnostic and management of UTI
2/ 60 years old, frequency, acute dysuria, 38°C, lumbar pain, normal prostate at DRE

- Diagnosis: acute pyelonephritis

- Uncertainty regarding ATB Rx:
  - treat like a pyelonephritis in women?
  - consider prostatic involvement and treat longer? with FQ?

→ Remind to search for:
  → pyelonephritis
  → complications such as abscess, stones…

→ specific studies on PN in male
  OR
→ studies on PN stratified according to gender
Male UTI: prostatitis...and beyond

1/ 60 years old, frequency, acute dysuria, 38°C, tender prostate at digital rectal examination (DRE)

2/ 60 years old, frequency, acute dysuria, 38°C, lumbar pain, normal prostate at DRE

3/ 60 years old, 37°C, frequency, no lumbar pain, no prostatic pain at DRE
3/ 60 years old, 37°C, frequency, no lumbar pain, no prostatic pain at DRE

Raises additional questions:

- how common is that clinical picture?

- is the prostate necessarily involved?

- what is your diagnosis?

- would you treat like a cystitis or like a prostatitis?
3/ 60 years old, 37°C, frequency, no lumbar pain, no prostatic pain at DRE

- How common is that clinical picture?
  French record of reason for consulting a GP: 1.4/1000


21 GP in Netherlands, included during 2y adult patients:
  - w symptoms of lower UTI
  - w/o fever, systemic complaints, catheter, history of urological complaints, or suspicion of sexually transmitted disease.
  - confirmed by urine analysis in 236, aged <50 (28%), 51-70 (38%), >70 (33%)

→ 1 patient/2 months for a GP

3/ 60 years old, 37°C, frequency, no lumbar pain, no prostatic pain at DRE

- Is the prostate necessarily involved in any male UTI?

- To date, no routine investigation could rule out a prostatic involvement (digital rectal examination, PSA...)

- Scintigraphic studies demonstrate that the prostate is inconstantly involved

Prostate involved in 9/20 patients

-Is the prostate necessarily involved?
  - what anatomic/imaging studies teach us:

- Peripheral ducts perpendicular to the urethra
- Prostatic infection depends on urine flow
- What if the urine flow is laminar?


Kirby, British J Urol, 1982, 54(6), 729–3
3/ 60 years old, 37°C, frequency, no lumbar pain, no prostatic pain at DRE

-What is your diagnosis? How would you treat?

- clinically rule out any anatomic/functional disorder (score CPSI?)
  if yes, consider the diagnosis and treatment of cystitis?

- unable to rule out functional bladder disorder?
  treat like prostatitis…?

To be investigated!

Words of Wisdom

it would be reasonable to reflect on useful definitions, terminology, and clinical reality in recommending antimicrobial treatment for different UTI presentations.

Magnus J Grabe. European urology, June 6th 2017
Take home

- Still a lot to do on acute prostatitis
  (“routine” treatment, “difficult-to-treat” pathogens, urological investigations…)

- Male UTI: diverse / not limited to prostatitis, clinical pictures to be clarified

- Cystitis exist in male but
  - such diagnosis should be retained only after strict exclusion of any underlying urethral disorder
  - no therapeutic study has yet been conducted

- Screen for underlying urological disorder
  - not to miss a prostatic involvement in any male UTI
  - because it might be the most important risk factor for treatment failure more than antibiotic Rx

- Specific research should be conducted on male UTI
  - in all domains (epidemiology, therapeutic…)
  - in general practice to better describe all clinical pictures