Safety and effectiveness of telemedical management of uncomplicated urinary tract infections

Eva Blozik, Carsten Sommer-Meyer, Manuela Cerezo, Jan von Overbeck
Swiss Centre for Telemedicine
Background

- Uncomplicated urinary tract infections (UUTI) in women are a frequent reason for encounter in general practice.
- Diagnosis and management are based mainly on the medical history.
- There are published clinical practice guidelines:
  - e.g. Guideline for the Management of Dysuria, issued by the German College of General Practitioners and Family Physicians (DEGAM).
- Telemedical management is an appropriate option.
Aim of the Study

Aim: to evaluate the safety and effectiveness of the telemedical management of UUTI including teleprescription of an antibiotic according to evidence-based guidelines in the Swiss Center for Telemedicine MEDGATE
Study Participants

- Medical consultation at MEDGATE because of urinary tract symptoms between November 1, 2008 and October 31, 2009
- Able to communicate in one of the Swiss national languages
- Telemedical management of UUTI appropriate according to evidence-based clinical protocol
  - female gender
  - obvious symptoms
  - diagnosis other than UUTI very unlikely
  - no contraindication for antibiotic therapy
  - age > 18 and < 65 years
  - symptoms less than 7 days
  - no relevant comorbidity according to predefined list
Exclusion Criteria

- Fever or chills
- Back or flank pain
- Vomiting
- Vaginal discharge
- Pregnancy
- UUTI recurrence within 2 weeks
- Treatment with antibiotics in the preceding 2 weeks
Therapy and Counselling

- **First line antibiotic:**
  - Trimethoprim/ sulfamethoxazole
    (160/800 mg, 2x/d for 3 days)

- **Second line antibiotics:**
  - Norfloxacin (400mg, 2x/d for 3 days)
  - Ciprofloxacin (250 mg, 2/d for 3 days)

- Prescription faxed to pharmacy of choice of the patient

- Counselling on general therapeutic measures
- Explanation of alarm symptoms
Participants Follow-up

- Routine follow-up by telephone 3 days after teleconsultation

- Assessment of
  - relief of symptoms
  - presence of adverse events
  - health service use
Baseline Characteristics

- N = 499, mean age 38 ± 13 years
- 81% German-speaking, 16% French-speaking, 3% Italian-speaking
- Duration of symptoms < 3 days 76%
- Hematuria 36%

Prescribed antibiotics:
- Trimethoprim / sulfamethoxazole 87%
- Norfloxacine 10%
- Ciprofloxacine 2%
- Amoxicilline 1%
- Fosfomycine 0.2%
## Clinical Outcome

<table>
<thead>
<tr>
<th>UUTI symptoms</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete symptom relief</td>
<td>390</td>
<td>78%</td>
</tr>
<tr>
<td>Symptoms reduced</td>
<td>72</td>
<td>14%</td>
</tr>
<tr>
<td>No notable change in symptoms</td>
<td>16</td>
<td>3%</td>
</tr>
<tr>
<td>Deterioration:</td>
<td>21</td>
<td>4%</td>
</tr>
<tr>
<td>Increase of pain or dysuria</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>Flank pain</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>Fever</td>
<td>2</td>
<td>0.4%</td>
</tr>
<tr>
<td>Vaginal discharge</td>
<td>2</td>
<td>0.4%</td>
</tr>
<tr>
<td>General condition worsened</td>
<td>2</td>
<td>0.4%</td>
</tr>
<tr>
<td>Hematuria</td>
<td>1</td>
<td>0.2%</td>
</tr>
<tr>
<td>Side effects of antibiotics suspected</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----</td>
<td>-----</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>5%</td>
</tr>
<tr>
<td>Itching</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>9</td>
<td>2%</td>
</tr>
<tr>
<td>Rash</td>
<td>5</td>
<td>1%</td>
</tr>
<tr>
<td>Flatulence or obstipation</td>
<td>2</td>
<td>0.4%</td>
</tr>
<tr>
<td>Unspecific symptoms</td>
<td>3</td>
<td>0.6%</td>
</tr>
</tbody>
</table>
## Reported Health Service Usage

<table>
<thead>
<tr>
<th>Self-reported health service use</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No health service use in the 3 days following teleconsultation</td>
<td>436</td>
<td>87%</td>
</tr>
<tr>
<td>Patient contacted MEDGATE 2nd time within 3 days following teleconsultation</td>
<td>16</td>
<td>3%</td>
</tr>
<tr>
<td>Referred to physician visit by MEDGATE</td>
<td>13</td>
<td>2.6%</td>
</tr>
<tr>
<td>Physician visit within 3 days following teleconsultation on patients’ own initiative</td>
<td>20</td>
<td>4%</td>
</tr>
<tr>
<td>Referral to physician visit after the 3-day routine follow-up call</td>
<td>27</td>
<td>5%</td>
</tr>
</tbody>
</table>
Summary

- Most UUTIs were resolved by evidence-based telemedical management.
- Proportion of absence of improvement and of side effects similar to UUTI management by face-to-face consultations.
- Referral to other health care providers for additional diagnostic or therapeutic interventions was only needed in a small proportion of patients.
Study Limitations

- Case series
- Follow-up interval 3 days
- Outcome of face-to-face consultation not assessed
- Self-reported outcome measures
- No urinary analysis or resistance testing
Conclusions

- Telemedical management of UUTI is as safe and effective as UUTI management by face-to-face consultation.

- High potential for saving a considerable number of face-to-face consultations because of UUTI.