Too Frequent Low-Dose Methotrexate Prescriptions
Quality Control and Quality Assurance

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Methotrexate 1x / Mo
every Monday or every morning?
Content

- introduction
- questions under study
- method
- definitions
- result
- discussion
- conclusions
Introduction

- Treatment of many medical conditions
  - Cancer
  - Autoimmune diseases

- Scheduling and doses varies widely
  - Cyclical protocols (cancer chemotherapy)
  - Weekly administration (autoimmune diseases)

- High-risk drug
  - Life-threatening conditions
  - New or prolonged hospitalizations

Methotrexate 1x / Mo every Monday or every morning?
Question under study

**Methotrexate 1x / Mo every Monday or every morning?**

- Do we have a quality problem?
  - erroneous too frequent MTX* prescriptions *(Methotrexate = MTX)*
  - erroneous too frequent MTX administrations

- How can we assure quality?
  - quality assurance program University Hospital Zurich (USZ)
  - MTX alert Hospital Simmental-Thun-Saanenland AG (STS)
Question under study

Do we have a quality problem?
- MTX prescription errors?
- MTX medication errors?

How can we assure quality?
- quality assurance program
- MTX alert

*Methotrexate 1x / Mo every Monday or every morning?*

*(Methotrexate = MTX)*

University Hospital Zurich (USZ)
Hospital Simmental-Thun-Saanenland AG (STS)
Definitions

Medication Error

Prescription Error

Correction

Near Miss

Prescription

Administration Error

Administration

Medication
Definitions

Medication

Administration

Prescription

Medication Error

Administration Error

Correction

Prescription Error

Near Miss
Definitions

- Medication
- Administration
- Prescription

Medication Error

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Medication

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Prescription

Medication Error

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Definitions

- Medication
- Administration
- Prescription
- Medication Error
- Administration Error
- Prescription Error
- Near Miss
- Correction

Content  Introduction  Question  Method  Definitions  Result  Discussion  Conclusion
Method (Quality Control)

- **two hospitals**
  - Tertiary Care: University Hospital Zurich (USZ)
  - Secondary Care: Hospital Simmental-Thun-Saanenland AG (STS)

- **retrospective analysis**
  - 55 month (December 2009 - June 2014)
  - all non oncological MTX prescriptions
  - inpatients only
Result (Quality Control)

**USZ**
- 55 months (12.2009 – 06.2014)
- 888 inpatients
- 14 prescription errors
  - 9 near misses
  - 3 major adverse events
  - 2 no adverse events

**STS**
- 20 months (12.2009 – 07.2011)
- 79 inpatients
- 2 prescription errors -> 2 near misses
Method (Quality Assurance)

**USZ**

- quality assurance program  
  - daily list of all new MTX prescriptions  
  - check by clinical pharmacologists  
  - phone call to the attending physician (if necessary)

**STS**

- automated MTX alert  
  - for non-oncological MTX prescriptions  
  - interruptive  
  - informative: MTX, as a rule, is ordered once a week
Result (Quality Assurance)

- **USZ**
  - 8 months (since January 2015)
  - 571 MTX prescriptions
  - 2 prescription errors -> 2 interceptions by clinical pharmacologist

- **STS**
  - 35 months (August 2011 – June 2014)
  - 123 inpatients
  - 1 prescription error -> 1 near miss
**Discussion**

<table>
<thead>
<tr>
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<th>Quality Control</th>
<th>Quality Assurance</th>
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</thead>
<tbody>
<tr>
<td><strong>USZ</strong></td>
<td>1.6% (14 errors / 888 inpatients)</td>
<td>2 interceptions ~ 638 prescriptions</td>
</tr>
<tr>
<td><strong>STS</strong></td>
<td>2.5% (2 errors / 279 inpatients)</td>
<td>0.8% (1 error / 123 inpatients)</td>
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*sample too little for statistical significant conclusions*
Conclusion

– **any incidence** of erroneous MTX prescriptions are considered **unacceptable**
– a **different quality assurance measure** was implemented in each hospital
– both approaches may have **an impact on patient safety**
an apple a day
keeps the doctor away

Thank you

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