Antibiotic Drug Monitoring Quality Assessed by a Clinical Pharmacist: Qualitative Study

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Background

- Our companion study (see abstract PK-102) showed that the performance of TDM in our Institution (400 beds teaching hospital) was very poor (incorrect sampling times; gross deficiencies in communication between the ward and the laboratory).

- This significantly affected the quality of TDM, leading to dosage adjustment recommendations that were only infrequently implemented.
Objectives

- Gaining insight in issues causing poor performance of antibiotic therapeutic drug monitoring (TDM) in a University hospital.
- Collecting perception of current TDM practice by health care professionals and laboratory personnel.
- Exploring approaches for optimizing TDM
Qualitative study: Overall design

- Focus group interviews
- Small groups (4-15 persons)
- Independent moderators
- Validated questionnaire to guide discussion
- Post-interview analysis of transcripts with QSR Nvivo 1.2 for Windows®
- Grounded theory approach (classification of emerging themes)
- Validation
3 groups of individuals directly involved in antibiotic TDM:

- prescribing physicians (7),
- nurses (10),
- laboratory technicians (6)

Wards:
Orthopaedic surgery, general surgery, neurosurgery, vascular surgery, haematology and pulmonary wards,
Main outcome measures

- Issues causing poor antibiotic overall TDM performance.
- Approaches for optimizing TDM performance supported by group consensus
Results (1)

Key issues identified:

- **Insufficient education in pharmacokinetics**
  
  *Physician 1: “We learned it “on the job”…there’s clearly a problem of medical education”.*

- **Insufficient information communication**
  
  *Physician 1: “At least 10% of sampling request is incomplete …*”.
  
  *Physician 3: “If we take the result in consideration…catastrophe”.*

* Do not say this to a child…
Results (2)

Key issues identified:

- **Conflicting guidelines**
  
  Nurse 4: "Different recommendations exist in our hospital… and give different sampling times…”
  
  Nurse 6: “This leads to confusion”.

- **Nursing work overload**
  
  Nurse 1: “If there are patient calls at the time of the sampling, we will first answer them, …the sampling will be postponed…because we cannot leave somebody in a difficult situation”.

Key issues identified:

- Lack of perception of positive benefit/risk ratio

  *Nurse 7: "For example if a patient develops renal failure, we don't realize that it can be related to high antibiotic blood levels. If somebody would tell us...we would pay more attention".*
Approaches for optimization (consensus):

- Continuous education of all stakeholders
  
  *Nurse 1*: "To sensitize the nursing team during team meetings ... I think that information and making people alert will lead to considerable improvement".

- Daily multidisciplinary collaboration with infectious disease physicians and clinical pharmacists
  
  *Nurse 5*: "... somebody visiting the ward every day ... who explains ... a pharmacist ... always collaborating with the infectious disease physicians".
Approaches for optimization (consensus):

- Simple and uniform guidelines and procedures

  *Physician 3*: “I would suggest to make one simple document containing a simple list of indications and to state clearly that if sampling conditions are not respected, TDM is useless and can even harm the patient”.

- Implementation of a simpler administration scheme

  *Nurse 5*: "For all problems related to the control of the duration of administration, continuous infusion is a good solution".

  *Nurse 8*: "And there's no peak level to be drawn ..."
Approaches for optimization (consensus):

- Increased staffing

  Nurse 9: "We don't have the time to go back and check for administration problems… it would be good to have an increased staff."
Conclusion

Correct performance of TDM and its implementation in routine clinical care needs to be critically assessed and appears to be mainly dependent on non-laboratory-related parameters.