Prospective analysis of clinical pharmacist interventions for QT drug-drug interactions alongside clinical decision support

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Abstract number: 4CPS-137
ATC code: 4. Historical research

Methods
In a tertiary hospital, QT-DDIs and pharmacist interventions were prospectively registered in a Microsoft Excel® database over a period of 5 years (2016-2020). All pharmacist interventions were analyzed. Chi square tests were used to compare frequencies.

- Possible QT-related interventions were electrocardiogram (ECG) or electrolyte monitoring, therapy change (e.g. drug switch), the choice between monitoring or therapy change, and (re)initiation.
- Three types of acceptance were evaluated: CDS alert acceptance, phone acceptance (i.e. oral confirmation by physician), and true intervention acceptance verified in patient records.
- Measured risk factors were female sex, age >65 years, impaired renal function (creatinine clearance <60 mL/min), electrolyte disturbances (potassium, calcium or magnesium), structural heart disease, >2 QT-prolonging drugs, bradycardia, no recent ECG, recent prolonged QTc interval.

Results

Of the 11084 QT-DDI alerts over 5 years (2016-2020), 2679 (24.2%) were accepted by physicians at time of prescription.

192 (1.7%) pharmacist QT interventions by phone, following QT-DDI alert

Types of QT intervention

- 85 (44.3%) monitoring
- 51 (26.6%) therapy change
- 31 (16.1%) (re-)initiation
- 25 (13.0%) monitoring or therapy change

Phone acceptance

Final acceptance of QT intervention

Phone acceptance (92.2%) was significantly higher than final intervention acceptance verified in patient records (75.5%) (p = 0.037).
There was no significant difference in final intervention acceptance between the intervention types (p = 0.087).

Present risk factors for 192 patients with QT intervention

Conclusion

Phone acceptance was very high, which can be interpreted as the pharmacist interventions being highly appropriate and complementary to CDS alerts. Reasons for the difference between phone acceptance and final intervention acceptance need to be explored.