

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

6ER-037 DRUG-DRUG INTERACTIONS WITH QT PROLONGING DRUGS IN PATIENTS ADMITTED TO A CARDIOVASCULAR DEPARTMENT: A RETROSPECTIVE ANALYSIS

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Background and importance Many medications have been implicated in prolonging the QT interval, and additional agents continue to be identified. Concomitant use of QT prolonging agents increases the risk of adverse events. Our hospital uses electronic medication records with a built-in drug-drug interaction (DDI) database that enables different analyses in prespecified populations. DDI analyses are part of a hospital/clinical pharmacist's work in our hospital.

Aim and objectives The aim of the study was to characterise QT prolonging DDIs in patients admitted to the cardiovascular department in the university hospital. Another objective was to compare DDI risk ratings in our built-in DDI database with two distinct DDI databases, to find possible differences and to further determine clinical significance.

Material and methods The study population consisted of patients hospitalised in the cardiovascular department who experienced at least one QT DDI during hospitalisation. Only DDIs with overall significance ratings of 5 or 6 on the 0–6 scale, with a QT prolonging mechanism, were included in the analysis. The cardiovascular department has 50 standard beds and 12 ICU beds. The study period was January to December 2019. DDI data were retrospectively extracted from electronic medication records. The respective electronic medical records were manually reviewed for additional information. The analyses were performed using descriptive statistics methods.

Results 3.7% of the patients admitted to the cardiovascular department (230/6250) experienced at least one QT DDI (study population). Single and multiple QT DDIs were more common in ICU patients than in standard unit patients. The most frequently involved agents were amiodarone, melperone, tiapride, citalopram, ciprofloxacin, tramadol, escitalopram, clarithromycin and sertraline. A maximum number of nine QT DDIs was found in one patient. Seven patients experienced drug associated long QT syndrome. DDI risk rating in our built-in database was considerably more stringent than in the comparator database (Lexi-Interact).

Conclusion and relevance The analysis revealed that QT DDIs were frequent among patients hospitalised in the cardiovascular department. The DDI database should be viewed as a guide, not an algorithm. Some QT DDIs rated as highly significant by our built-in DDI database seemed to have a low clinical impact in real world settings. It is useful to consult more sources or seek expert opinion, if in doubt. The role of the hospital/clinical pharmacist as a consultant seems essential.

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National poster prize winners

NP-015 QUALITY ASSESSMENT OF 3D PRINTED SILDENAFIL AND FUROSEMIDE TABLETS FOR THE PAEDIATRIC POPULATION USING AN INNOVATIVE EXTRUSION-BASED TECHNIQUE

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Background and importance Commercially available tablets often don't meet patients' needs, as is the case for children. Three-dimensional (3D) printing can possibly achieve this. However, most investigated 3D printing techniques for production of pharmaceutical preparations may not be suitable for chemically unstable drugs. In addition, quality requirements are not well established.

Aim and objectives A proof-of-principle study was conducted using a low heat, solvent-free extrusion-based 3D printing technique. Furosemide and sildenafil immediate release tablets containing paediatric appropriate dosages were the model products. The quality requirements as stated by the European Pharmacopoeia (EP) were evaluated.

Materials and methods Formulations containing furosemide, 2 mg or 10 mg per tablet, or sildenafil, 4 mg per tablet, were slightly heated to a semi-solid to allow printing. The tablets were analysed for weight distribution (EP 2.9.5.), content uniformity (EP 2.9.40.) and dissolution profile (EP 2.9.3.), using an analytical balance, high-performance liquid chromatography ultraviolet and UV/VIS spectrophotometry, respectively. Content uniformity and dissolution analyses were performed in triplicate. Linear regression analysis was performed to assess tablet mass and content.

Results The weight distribution met the requirements of EP 2.9.5 with a relative standard deviation of 1.26%. The acceptance values of the content uniformity of furosemide 2 mg, 10 mg and sildenafil 4 mg ranged between 4.2–10.6, 4.8–8.9 and 6.6–9.2, respectively, where a maximum value of 15 was accepted. A linear correlation between tablet mass and content was found. Furosemide 10 mg and sildenafil 4 mg showed a dissolved content of >80% after 45 minutes, indicating an immediate release profile. For furosemide 2 mg batches, the second testing level had to be used. This preparation also met the requirement of an immediate release profile. Additionally, the tablets should also have sufficient microbiological stability (EP 5.4.1.) and mechanical strength (EP 2.9.7. and 2.9.8.), though an adjusted test for mechanical strength is necessary for applicability to 3D printed tablets.

Conclusion and relevance This proof-of-principle study shows lower temperature 3D printing can be useful in enabling production of personalised tablets. Further investigation of suitable quality tests for 3D printed tablets will be performed in further studies.