results of the current study were compared to those of the reference population published by Charles et al.[1]

Results In 15 preterm infants 58 samples were collected in which caffeine plasma levels were determined. Median gestational age (GA) was 26.3 (range 24–28) weeks, postnatal age (PNA) was 25 (0–63) days and current weight was 1100 (600–2140) grams. Caffeine CL and V_d for an individual with a PNA of 12 days were estimated 0.2 L/h/70kg (RSE 28%) and 68.2 L/70kg (RSE 73%), respectively. Maturation of CL was best described by a power function with an exponent of 0.404 (RSE 89%). These results seem in good agreement with the reference population of preterm neonates receiving caffeine without doxapram with values of 0.167 L/kg/70 kg, 58.6 L/70kg and 0.358.[1]

Conclusion In this pharmacokinetic study in preterm neonates receiving both caffeine and doxapram, we found similar values for CL, V_d and maturation of CL with PNA compared to literature values obtained in preterm neonates receiving caffeine alone.

REFERENCES

1. BG C. *et al*. Caffeine citrate treatment for extremely premature infants with apnea: population pharmacokinetics, absolute bioavailability, and implications for therapeutic drug monitoring. *Ther. Drug Monit* 2008;**30**:709–716.

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P32 DEPICTION OF HAEMATOLOGICAL AND BIOCHEMICAL LABORATORY NORMAL REFERENCE VALUES IN A EUROPEAN MULTICENTRE PAEDIATRIC TRIAL

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Background The European multicentre paediatric trials for the drug development programme of LENA (FP7 Grant agreement No. 602295); 'Labeling of Enalapril from Neonates up to Adolescents' require the determination of laboratory safety parameters. It was anticipated that the laboratory normal reference values and age range classifications vary depending on the clinical site. Thus, the objective was a seamless and clear depiction of the laboratory parameters to allow an adequate subsequent analysis of data.

Methods Fourteen haematological and biochemical safety parameters plus the biomarker N-terminal pro-brain natriuretic peptide were considered. The laboratory normal reference values received from eight clinical sites were screened on data gaps, uncertainties, misclassifications and overlap of age range classifications. These aspects were revised. If further data were necessary for clarification the responsible person of the respective laboratory was contacted by email or telephone.

Results Data gaps and uncertainties of the laboratory normal reference values such as missing data for one sex, missing data for an age range classification, missing data for a parameter or overlap of age range classification were identified. All issues were solved by communication with the sites. Each laboratory parameter was categorized in between 1 and 23 age range classifications between an age from birth to 4744 days depending on the classification of the clinical site. Furthermore, up to 4 various units were recorded per laboratory parameter and subsequently harmonised into one unit.

Conclusion The developed seamless depiction of the laboratory parameters will allow the assessment and classification of the paediatric trial data and are essential for the adequate subsequent analysis.

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P33 EFFECTIVENESS OF OSCES IN TRAINING GERMAN PHARMACY STUDENTS IN CONSULTATION ON SELF-MEDICATION – A RANDOMISED CONTROLLED INVESTIGATION

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Background In Germany 37.1% of dispensed medicinal products were intended to use in self-medication in 2017.[1] An investigation showed that 25.2% of children and adolescents used self-medication in Germany.[2] Hence, pharmacists' education needs to include training for competence in consultation.[3]A modern method to train this competence is the use of OSCEs (Objective Structured Clinical Examinations). The aim of this study was to assess whether the use of OSCEs in pharmacy students to train the consultation performance on self-medication is more effective than a conservative teaching method.

Methods This randomised controlled investigation was conducted in a pre-post-design with pre-OSCEs before training and post-OSCEs after training in each group. Clinical skills at baseline and after the training were measured. Forty students in their last year of pharmacy studies were randomised into a control and an intervention group. The control group attended a lecture on self-medication and the intervention group had additionally to the lecture one hour of OSCEs for training purpose. An analytical checklist was used for measuring consultation skills and a global rating scale for assessing communication skills.

Results Complete data was received from 30 students (n=16 intervention group, n=14 control group). Consultation skills improved significantly (analytical checklist: 19.88% ± 10.95% intervention group vs. 9.29% ± 10.89% control group, $p< 0.05$). However, the communication skills (global rating scale: 20.83% ± 24.33% in the intervention group vs. 11.90% ± 17.12% in the control group, $p= 0.380$) did not improve significantly during the one-hour training period.

Conclusion OSCEs for training purpose are an effective method to convey pharmacy students consultation skills in self-medication. However, communication skills need more training. Based on these results OSCEs on self-medication for the paediatric population should be investigated. This is relevant due to the frequency of self-medication in the paediatric population.

REFERENCES

1. 1. Abda.de. [Internet]. Berlin: Federal union of German associations of pharmacists. Numbers, data, facts 2016. [Cited January 30, 2019]. Available from: https://www.abda.de/fileadmin/assets/ZDF/ZDF_2018/ABDA_ZDF_2018_Brosch.pdf
2. Du Y, Knopf H. Self-medication among children and adolescents in Germany: results of the National Health Survey for children and adolescents (KiGGS). *Br J Clin Pharmacol* 2009;**68**:599–608.
3. Joint Statement by the International Pharmaceutical Federation (FIP) and the World Self Medication Industry (WSMI). [Internet]. Responsible Self-medication. 1998. [Cited January 30, 2019]. Available from: https://www.fip.org/www/uploads/database_file.php?id=241&table_id=.

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P34 RELIABLE RESULTS IN CONTINUOUS BIOANALYSIS OF PAEDIATRIC RENIN SAMPLES – COMPREHENSIVE QUALITY ASSESSMENT WITHIN CLINICAL STUDIES IN CHILDREN

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Background As the initiator of the Renin-Angiotensin-Aldosterone-system, renin plays an essential role in the vicious circle of heart failure. Therefore, renin was determined in the investigators driven 'Labelling of Enalapril from neonates up to adolescents' (LENA) study to evaluate its role in paediatric heart failure. Due to the often long-lasting periods of recruitment of paediatric subjects, the assay performance has to be guaranteed over the whole recruiting time. Therefore, to ensure the high quality of the determined renin study samples after successful assay validation,[1] a multi-step quality approach was used to get reliable results over a period of 30 months.
Methods Based on a multi-step quality approach consisting of calibration standards (CSs), quality controls (QCs) and incurred sample reanalysis (ISR), study samples of unknown renin concentrations were determined. Results within predefined limits of CSs (6 levels) and QCs according to European Medicine Agency (EMA) guidelines were required for evaluating the study samples.[2] ISR was performed for randomly selected paediatric samples to evaluate the long-term accuracy of the validated assay.
Results 133 analytical runs were conducted for renin from February 2016 to August 2018. In 119 (88.8%) valid runs, a total number of 1414 of CCs and 952 of QCs were determined. Thereof 99.9% of CCs and 98.3% of QCs were in the predefined limits according to EMA. 143 incurred sample pairs were reanalysed resulting in 95.8% of samples within EMA guidelines. Using this multi-step quality approach, the reliable determination of 965 LENA paediatric study samples was guaranteed.
Conclusion In addition to the assay validation, the multi-step quality approach ensured the reliability of the determined renin concentrations in the continuous bioanalysis of the paediatric study samples and guaranteed the high quality of the collected data in the LENA study.

REFERENCES

1. Schaefer J, Burckhardt BB, Tins J, *et al*. Validated low-volume immunoassay for the reliable determination of direct renin especially valuable for pediatric investigations. *J Immunoass Immunochem* 2017;**38**:579–94. doi:10.1080/15321819.2017.1350707
2. Guideline on bioanalytical method validation. European Medicines Agency, London, UK (2011).

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P35 APREPITANT IN THE PREVENTION OF CARDIOTOXIC ADVERSE EFFECTS OF DOXORUBICIN IN THE PAEDIATRIC POPULATION – A SYSTEMATIC LITERATURE INVESTIGATION

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Background In cell line experiments, the selective NK-1-receptor antagonist Aprepitant was able to inhibit the cardiotoxic adverse effects of Doxorubicin,[1] a common cytostatic used in paediatric cancer therapies. Cytostatic therapy is one of the principal reasons for toxic cardiomyopathy in children, resulting in dilated cardiomyopathy and consequently leading to heart failure. However, Aprepitant is currently licenced for adults and children and is indicated amongst others in the antiemetic supportive therapy of Doxorubicin regimes. To address the hypothesis of any indication of Aprepitant in preventing cardiotoxic adverse effects of Doxorubicin, systematic literature research is needed.
Methods Systematic literature research was examined using PubMed in January 2019. Selected inclusion criteria were: 'Substance P' or 'Aprepitant' and 'Doxorubicin'/'cardiac inflammation'/'cardiomyopathy' or 'Aprepitant' and 'paediatrics'/'neonates'/'children'. The use of Aprepitant in adults and children as an antiemetic agent and the involvement of Substance P in (neurogenic) inflammation, cardiac infarction or diabetes led to the exclusion of publications.
Results The PubMed search resulted in 220 identified publications whereby 33 were relevant concerning the potential use of Aprepitant in the prevention of cardiotoxic adverse effects of Doxorubicin. It emphasises the potential use of Aprepitant in the prevention of toxic cardiomyopathy by antagonizing the inflammatory effects of the endogenous NK-1-agonist Substance P regarding cell and animal models.[1 2] Based on these models, Substance P is associated with adverse cardiac remodelling and cardiac inflammation. However, in children, Aprepitant was only used as an antiemetic agent and no off-label indication was described.
Conclusion Since toxic cardiomyopathy is a severe adverse effect in the Doxorubicin therapy in children, the evaluation of the role of Substance P is a promising and worthy approach to condense the knowledge about a potential use of Aprepitant in preventing paediatric toxic cardiomyopathy.

REFERENCES

1. Robinson P, Kasembeli M, Bharadwaj U, *et al*. Substance P receptor signaling mediates doxorubicin-induced cardiomyocyte apoptosis and triple-negative breast cancer chemoresistance. *Biomed Res Int* **2016**;2016. doi:10.1155/2016/1959270
2. Levick SP, Soto-Pantoja DR, Bi J, *et al*. Doxorubicin-induced myocardial fibrosis involves the neurokinin-1 receptor and direct effects on cardiac fibroblasts. *Heart Lung Circ*. Published Online First: September 2018. doi:10.1016/j.hlc.2018.08.003