

production. Mean relative errors (MRE) between the theoretical osmolarities calculated with the PDS and MD equations and the measured osmolarity were compared using a Student's *t* test. NPN was divided into seven ranges according to the osmolarity measured by freezing point depression with the OsmoPro osmometer (Advanced Instruments).

**Results** 2572 NPN were analysed. Osmolarities were distributed as follows: 1.7% from 500 to 749 mosmol/L, 19.6% from 750 to 999 mosmol/L, 25.5% from 1000 to 1249 mosmol/L, 18.4% from 1250 to 1499 mosmol/L, 15.5% from 1500 to 1749 mosmol/L, 15.3% from 1750 to 1999 mosmol/L and 4.0% over 2000 mosmol/L. Between 500–749 and 750–999 mosmol/L, the MRE of osmolarities were similar with both equations ( $p=0.99$  and  $p=1$ ). However, there was a significant difference in MRE in favour of the PDS equation between 1000 and 1249 mosmol/L ( $p=0.027$ ), 1250 and 1499 mosmol/L ( $p=6.5 \times 10^{-45}$ ), 1500 and 1749 mosmol/L ( $p=2.4 \times 10^{-129}$ ), 1750 and 1999 mosmol/L ( $p=2.05 \times 10^{-129}$ ) and over 2000 mosmol/L ( $p=1.66 \times 10^{-36}$ ).

**Conclusion and relevance** From 500 to 999 mosmol/L, both equations can be used to predict NPN osmolarities. For NPN with osmolarities from 1000 to over 2000 mosmol/L, the PDS equation was significantly more accurate. Therefore, the actual theoretical osmolarity calculation method should be revised in favour of the MD equation for NPN with osmolarities <1000 mosmol/L and the PDS equation for NPN with osmolarities >1000 mosmol/L.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

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**Conflict of interest** No conflict of interest

3PC-073

#### EVALUATION OF ANTIBIOTICS' PHYSICOCHEMICAL INCOMPATIBILITY WITH THE PRESENCE OF DIVALENT CATIONS

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**Background and importance** The sensitivity of drugs to dietary influences largely depends on their physicochemical properties. Interactions between drugs and foods may induce a change in the physicochemical and pharmacological properties of the active ingredient, such as its bioavailability and toxicity.

**Aim and objectives** To determine the physicochemical incompatibility of the active ingredient (AI) of some antibiotics in the presence of divalent cations found frequently in our daily diet or in patients using parenteral nutrition at the hospital.

**Material and methods** We selected nine active ingredients of the most commonly used antibiotics at the hospital, mixed separately with four divalent cations. The mixtures were made by introducing the components in an equivalent amount into test tubes. The tests were carried out under two conditions: (1) ambient temperature and (2) after heating and acidification of the mixtures with HCl. 90 AI/cation mixtures were made and analysed after 1 hour. The physicochemical properties previously established for both the active ingredients and the

#### Abstract 3PC-073 Table 1

	Ambient temperature				After heating and acidification			
	Ca <sup>2+</sup>	FE <sup>2+</sup>	MG <sup>2+</sup>	ZN <sup>2+</sup>	Ca <sup>2+</sup>	FE <sup>2+</sup>	MG <sup>2+</sup>	ZN <sup>2+</sup>
Trimethoprim	-	++	-	-	+	+++	+	-
Amoxicillin trihydrate	-	-	-	-	-	+	-	-
Spiramycin	-	-	-	-	-	+	-	-
Sulfamethoxazole	-	-	-	-	-	+	-	-
Metronidazole	-	-	-	-	-	+	-	-
Ciprofloxacin	-	++	-	+	-	+++	-	+
Tetracycline	++	-	-	-	+	+	-	-
Azithromycin	-	-	-	-	-	+	-	-
Cefixime	-	++	-	-	-	+++	-	+

-, no visual interaction ; +, presence of precipitate ; ++, change colour ; +++, change colour with presence of precipitate.

cations were compared with the new data using UV visible spectroscopy.

**Results** Results are represented in table 1.

**Conclusion and relevance** Compatibility data with oral or parenteral nutrition is often missing for most of the frequently used drugs requiring a case-by-case assessment. The clinical pharmacist's understanding of physicochemical and pharmacological phenomena related to drug and food incompatibilities is a useful resource in the management and prevention of this problem.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

1. We want to thank the team of analytical chemistry and bromatology laboratory.

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## Section 4: Clinical pharmacy services

4CPS-217

#### NETUPITANT-PALONOSETRON IN BREAST CANCER: POTENTIAL DRUGS INTERACTIONS

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**Background and importance** Neurokinin-1 (NK1) receptor antagonist (RA), netupitant, is usually co-administered with the serotonin (5-HT<sub>3</sub>) RA, palonosetron, to prevent chemotherapy induced nausea and vomiting.

**Aim and objectives** To analyse potential drug interactions (PDI) between netupitant-palonosetron (NEPA) with breast cancer treatment.

**Material and methods** This was a retrospective observational study including all patients who started with epirubicin and cyclophosphamide in a third level hospital from January to August 2020 (8 months). At the beginning of treatment, the pharmacist reviewed the medication during the pharmaceutical consultation. PDI were identified using Micromedex, Uptodate-intreactions, Medinteract (Spanish Society of Hospital Pharmacy) and Drug Interaction checker (Food and Drugs Administration).

**Results** 130 medicines were reviewed in 79 patients from January to August 2020. Mean age was  $61 \pm 6.5$  years. 48 patients (60.78%) were polymedicated; the average number of medications per patient was 4.25. At the pharmacokinetic level, the main interaction was CYP3A4 substrate concentrations were increased, and at the pharmacodynamic level, the risk of QT syndrome and serotonergic syndrome were increased.

61 PDI were founded in 40 patients (51.89%); 10 were severe and 21 were moderate. The most common types of drugs involved were steroids, proton pump inhibitors and antidepressants. Eight (80%) severe PDI were accepted and moderate recommendations led to reduction in dosage or concomitant use.

**Conclusion and relevance** This study showed that more than half of patients with NEPA has at least one PDI. Clinical pharmacists are essential in detecting PDI, which is a positive influence on physician prescriptions and patient treatment outcomes, improving the safety and effectiveness of oncological treatment

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#### 4CPS-218 ANTIDIABETIC TREATMENT IN FRAIL PATIENTS WITH TYPE II DIABETES ADMITTED TO THE EMERGENCY DEPARTMENT FOR ALTERED GLYCAEMIA

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**Background and importance** Decompensated glycaemia is one of the main causes of emergency department (ED) visits among diabetic patients. However, information about antidiabetic treatment and risk factors associated with elderly diabetic patients revisiting the ED is scarce.

**Aim and objectives** To describe the oral antidiabetic treatment and glycated haemoglobin (%HbA1c) value in frail patients with type II diabetes admitted to an ED due to hyperglycaemia or hypoglycaemia and to evaluate the risk factors associated with 30 day revisits.

**Material and methods** This was a retrospective observational study (2017–2019). Frail patients with type II diabetes treated with oral antidiabetics admitted to an ED due to hyperglycaemia or hypoglycaemia were included. To evaluate the risk factors associated with 30 day revisits, a multivariate analysis was performed in which comorbidities and treatments risk factors with a p value <0.200 were included.

**Results** 48 patients were included (mean age 83 ( $\pm 7.7$ ) years); 23 (48%) were admitted for hyperglycaemia and 25 (52.1%) for hypoglycaemia. Six (12.5%) patients were being treated with insulin only, 27 (56.3%) with oral antidiabetics only and 15 (31.2%) with oral antidiabetics and insulin. The most frequent oral antidiabetic prescribed was metformin, used as monotherapy in 11 (38%) patients, combined with a sulphonylurea in 6 (20.6%) patients, with gliptins in 6 (20.6%) patients and with repaglinide in 3 (10.3%) patients.

38 (79.1%) patients presented a%*Hb1Ac* value during the year before the ED visit; in 11 patients (29.8%) between

7.5% and 8.5%, in 18 patients (47.3%) <7.5% and in 9 patients (23.7%) >8.5%. At discharge from the ED, treatment was modified in 14 patients (30.4%); none of them revisited the ED after 30 days. Of the 32 patients (69.6%) in whom the medication was not modified, 10 (21.7%) revisited the ED after 30 days due to alterations in glycaemia, 4 (40%) for hypoglycaemia and 6 (60%) for hyperglycaemia.

In the univariate analysis, chronic heart failure and treatment modification at discharge were associated with a greater risk of 30 day revisit. In the multivariate analysis, a significant association between chronic heart failure and the risk of revisits was found (OR 4.12 (1.02–14.21)).

**Conclusion and relevance** Frail patients who consulted the ED for drug related problems due to antidiabetic drugs presented a high risk of revisits, with a lower risk in those patients in whom treatment was modified at ED discharge.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

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#### 4CPS-219 COMPARISON OF THE NUMBER OF PARENTAL NUTRITION PRESCRIPTIONS IN 2020 DURING THE COVID-19 PANDEMIC WITH THE SAME TIME PERIOD IN 2019

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**Background and importance** The pharmacy service (PS) is a cornerstone of the nutritional support of patients, especially those with special needs. For this reason, it is necessary to create individualised nutrition following recommendations from scientific organisations, such as the European Society for Clinical Nutrition and Metabolism (ESPEN).

**Aim and objectives** To analyse prescriptions of parental nutrition (PN) during the pandemic and compare them with those from the same time period in 2019.

**Material and methods** This was a retrospective descriptive observational analysis of data from a secondary care hospital during March and April, both in 2019 and 2020. Demographic (age and sex) and clinical (length of PN and diagnosis) data were collected from medical records.

**Results** There were 157 patients with PN during the period of study in 2020, 106 (67.5%) men with a median age of 67 years (IQR 14.5 years). In 2019, 64 patients received PN, 38 (59.4%) were men with a median age of 70 years (IQR 17). In 2020, 48.8% of patients with PN were under the critical care service (CCS), 30.6% internal medicine service (IMS) and 18.5% surgical service (SS); 108 (68.8%) were diagnosed with COVID-19. In 2019, 15.6% of patients were under CCS, 25% IMS and 56.4% SS. In 2020, 85 patients (54.1%) terminated PN due to health improvement and 60 (38.2%) died; in 2019, 54 (84.4%) improved and 9 (14.1%) died. In 2020, the median age of deceased patients was 67 years (IQR 12.5 years) and in 2019 it was 77 years (IQR 9.5 years). The total number of PN prescribed during the periods of the study was 2121 in 2020 and 876 in 2019.

**Conclusion and relevance** In the context of the SARS-CoV-2 pandemic, nearly half of all PN were prepared for CCS