with 21 mL/h and three mixtures with >21 mL/h. Thirty of the 60 mixtures (50%) were changed every 24 hours, the rest were changed when the perfusion finished according to the infusion rate without considering the mixtures' stability. Of the mixtures which were changed correctly: 70% were prescribed with an infusion rate of <21 mL/h; 20% with 21 mL/h; and 10% with >21 mL/h. On the other hand, the mixtures changed after the recommended time were prescribed with an infusion rate: 90% with <21 mL/h and 10% with 21 mL/h.

Conclusion The mixtures prescribed with an infusion rate of <21 mL/h led to a miscalculation of the time when the mixtures had to be changed correctly. Every mixture was changed at the right time when written and oral recommendations were given to the nursery. Therefore, it is necessary to give active and passive information about mixtures' stability to ensure their effectiveness and safety.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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5PSQ-023 ADEQUATE DIGOXIN DOSAGE IN PATIENTS WITH DIGITALIS TOXICITY

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Background Digoxin is a high-alert medication because of its narrow therapeutic range and high drug-to-drug interactions. Fifty per cent of cases of digoxin toxicity can be prevented by improving treatment with digoxin.

Purpose Checking whether the dosage of digoxin in intoxicated patients accords with clinical guidelines' recommendations.

Material and methods Retrospective study of patients discharged between 2015–2017, presented as a primary or secondary diagnosis of digitalis toxicity. Variables: date of birth, sex, weight, size, diagnosis for treatment with digoxin – atrial fibrillation (AF) or heart failure (HF) – daily dose of digoxin, serum creatinine, digoxinemia and Potasemia (K⁺). It was estimated whether the dosage of digoxin was correct based on anthropometric data and doses of daily digoxin using PKs. For those inadequately dosed patients, daily doses of adequate digoxin were calculated. The glomerular filtration rate (GFR) was calculated by MDR/CKD-EPI.

Results Sixty-four patients (47 females), median age: 83.7 years (55–102), median weight: 69.2 kg (45.5–105 kg) with 52% below 70 kg were considered in the dosage recommendations. The mean value of GFR 50, 65 mL/min (SD=19.9) (77%<60 mL/min): 67% [K⁺]≤4.5 meq/dL. Diagnosis for treatment: HF in 34 patients and AF in 30 patients. The average dose of digoxin prior to admission was 0.163 mg/day (SD=0.06). The average digoxinemia at income was two, 94 ng/mL (SD=1.36). The serum digoxin concentrations justified intoxication in most patients. Only two patients presented with serum digoxin concentrations below 1 ng/mL: 81% greater than 2 ng/mL. No significant differences were found between doses, concentrations or level/dose index of digoxin of patients diagnosed with HF and AF. A significant relationship (p<0.003) was found

between dose or level/dose index and patient's GFR. Doses estimated to obtain concentrations within therapeutic range were 0, 110 mg/day (considering age, sex, weight and GFR), that is, 32.4% less than the pre-admission dose. Nine patients met the STOPP criterion of inappropriate prescription for administering doses of digoxin >0.125 mg/day to patients older than 65 years with GFR <50 mL/min.

Conclusion Clinical guidelines recommend evaluating renal function (K⁺) and serum digoxin concentration, considering the appropriate range for HF (0.6–0.8 ng/dL) and AF (0.8–1.0 ng/dL). Control of potassium levels would be insufficient, and doses administered higher than those necessary for the recommended therapeutic range. Monitoring of serum digoxin concentrations could reduce digitalis toxicity.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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5PSQ-024 MEDICATION ERRORS – A CAUSE FOR MAJOR CARDIOVASCULAR EVENTS IN AN EMERGENCY DEPARTMENT

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Background Cardiovascular diseases (CVD) represent the main cause of mortality worldwide. The drugs recommended for CVD are the most prescribed drugs and, as a consequence, the risk of medication errors is increased. Nowadays, medication errors are the most common type of medical errors.

Purpose The objective of this study was to assess the major cardiovascular events due to medication errors in an emergency department (ED).

Material and methods A retrospective observational study was conducted in 416 patients with major cardiovascular problems (acute coronary syndrome – SCA, ischaemic/haemorrhagic stroke, hypertensive crisis) in an ED from 1 July 2017 to 31 August 2017.

Results A total of 9086 patients were admitted to the ED during July to August 2017. Of these, 416 patients (4.57%) presented with major cardiovascular events, 220 females (52.9%) and 196 males (47.1%). The mean age of the analysed patients was 67.68±14.2 years. The most common cardiovascular events were strokes (50%), hypertensive crisis (34.4%) and acute coronary syndrome (14.7%). In 99 out of 416 patients (23.8%), medication errors were identified. The main medication errors were lack of anti-platelet/anticoagulant therapy (43.43%), non-adherence to treatment (16.16%), inadequate anti-hypertensive therapy (7.07%) and inappropriate treatment (e.g. association between two calcium channel blockers) (1.01%).

Conclusion Medication errors are one of the major causes of major cardiovascular events. Many of the medication errors leading to a visit to the ED could be prevented. It is necessary to develop prevention strategies. Clinical pharmacologists/pharmacists can play an important role in this strategy.

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5PSQ-025 PULMONARY ARTERIAL HYPERTENSION DRUGS: EPIDEMIOLOGICAL ANALYSIS CONCERNING AN ITALIAN DISTRICT

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Background In recent years, numerous patients with pulmonary arterial hypertension (PAH) were treated in this district and the therapy approach changed radically, with a lot of different drugs provided from the hospital pharmacy. In fact, the number of available drugs increased, and also the therapy strategies have evolved, for example with associations of two or three drugs.

Purpose The aim of this study was an epidemiological and prescription analysis of the period from 2004 to 2017 to highlight average age, gender prevalence, survival and age at the first dispensation. Furthermore, this study analysed the prescription trend from 2012 to 2017.

Material and methods Data were obtained from the constant updating of dispensed drugs in this hospital pharmacy. At this point, they were processed by software such as Microsoft Access and Excel, to obtain epidemiological and prescriptive informations from 2004 to 2017. Furthermore, the prescription frequency of combination therapies from 2012 to 2017 was analysed, using the same computer programs.

Results Patients' average age was 55 years (comparable with the literature data) and the gender prevalence was higher in females (66%). There were six patients in 2004, rising to 57 in 2017. 39.6% died with an average survival of 2.8 years and the average age at the first dispensation was 56 years' old. The prescriptive trend saw a progressive redistribution of consumption, with a prescriptions' increase of innovative medicines. Drugs association is a growing strategy and the collected data are aligned with the reference guidelines (in 2017, 43 patients were treated with monotherapy and 14 with two-three drug therapy).

Conclusion Recent pharmacology and studies, and improved early diagnosis, showed an increase in patient numbers, average age and survival. In the case of monotherapy failure, polytherapy, which is constantly increasing, is a good strategy that gives more efficacy with comparable side effects.

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5PSQ-026 IMPACT OF A SAFETY ALERT WITH VALSARTAN IN A HEALTH MANAGEMENT AREA

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Background Valsartan is an angiotensin II receptor antagonists (ARAI), used to treat high blood pressure and heart failure. In July 2018, a safety alert about the presence in certain

drugs with valsartan of an impurity (N-nitrosodimethylamine (NDMA)), potentially cancer-causing, was released by all health agencies. In our country, the local agency informed about all brands contaminated, encouraging patients affected to change it for another one in their pharmacies.

Purpose To describe the impact of a safety alert in the consumption of valsartan.

Material and methods A retrospective observational study of all patients in treatment with valsartan was conducted. First, after the safety alert, we obtained a list of patients in treatment with valsartan, selecting those with the impure drug. Second, in October we reviewed if those patients continued with valsartan or changed to another ARAII.

The variables were age, sex, drug before and after the alert, time between the alert and the measure taken, if one was made (change of ARAII, suspension of treatment, maintained the same ARAII but changed to an original brand or another generic).

Results Two-hundred and twenty-six patients were included (131 females), with an average age of 72.32 years (44–96). From all patients, 73 (32%) did not go to the doctor and when they had to pick up the next box was when the pharmacist gave them a non-contaminated drug. The rest of the 153 patients (68%) visited the doctor after the safety alert. In these patients: 105 changed to losartan, three to telmisartan and three to candesartan; 37 changed the label of valsartan (35 to an original brand and two to generic); and six suspended the ARAII drug. The average time between the alert and the doctor's visit was 12.7 days.

Conclusion Many physicians preferred to change medications than to continue with valsartan, so we will have to check if this trend remains in time and the consumption of valsartan is reduced. In addition, 32% of patients did not go to the doctor and did not change the drug until it had finished, without being aware of the safety alert, so the method of communicating health alerts to patients will have to be improved.

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5PSQ-027 EFFECTIVENESS AND SAFETY OF TOLVAPTAN AND UREA FOR THE TREATMENT OF SEVERE SYMPTOMATIC HYPONATRAEMIA: A CASE SERIES

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Background Tolvaptan and, recently, urea were both indicated for the treatment of hyponatraemia secondary to the Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH) in our country. The FDA also contemplated its use in patients with heart failure (HF). Regarding safety of these drugs, patients with very low baseline natraemia may be at risk for too-rapid correction of serum sodium (>12 mEq/L/24 hours).

Purpose To analyse the effectiveness and safety of tolvaptan and urea, and its use in relation to the diagnosis of hyponatraemia.

Material and methods Retrospective observational study of all cases of severe symptomatic hyponatraemia diagnosed during