also assessed. As secondary variables, we studied the main therapeutic groups prescribed with DR and PR-QT and the concomitance of their prescriptions along with a history and/or cardiac pathologies. Demographic, clinical and analytical data were obtained from the electronic clinical history and treatment data from the electronic prescription programme.

Results As of 4 July 2019, 87 patients with active electronic prescriptions in a NH were selected. Average age was 66 years (52–101), 55.2% (48/87) were men and 70% were assisted (70/87). Among these patients, 13% were being treated with a DR-QT drug (11/87) and 13% with a PR-QT drug (11/87). Two patients were receiving a DR-QT and a PR-QT drug. Two patients were receiving two PR-QT drugs. The main therapeutic groups of DR-QT drugs were antidepressants (45%), antipsychotics (36%), antiarrhythmics and other (9%). The main therapeutic groups of PR-QT drugs were antipsychotics (38%), antidepressants (31%), genitourinary (15%), musculoskeletal and others (8%). Three patients treated with DR-QT drugs and six patients treated with PR-QT drugs had a history and/or cardiac pathologies. No patient receiving a DR and a PR drug had a history and/or cardiac pathologies. Two patients who were receiving two PR-QT drugs had a history and/or cardiac pathologies, mainly arterial hypertension.

Conclusion and relevance One-quarter of institutionalised elderly patients in a NH were being treated with DR and/or PR-QT drugs, in almost half of the cases with a history and/or cardiac pathology. The main therapeutic groups involved were antidepressants and antipsychotics.

REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

5PSQ-014 RETROSPECTIVE EVALUATION OF RESUSCITATION MEDICATION UTILISATION IN HOSPITALISED ADULT PATIENTS WITH CARDIAC ARREST

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Background and importance Early medication administration in cardiac arrest improves outcomes. Non-compliance with advanced cardiovascular life support (ACLS) guidelines, including errors in medication administration, have been shown to decrease return of spontaneous circulation (ROSC) and cardiac arrest survival.^{1 2}

Aim and objectives The primary objective was to evaluate the association between adrenaline administration in in-hospital cardiac arrest (IHCA) patients with non-shockable rhythm and patient outcomes. The secondary objective was to assess compliance of adrenaline and amiodarone administration in accordance with ACLS guidelines.

Material and methods IHCA patients aged ≥18 years were identified from the resuscitation registry of 2016 of two large public hospitals and categorised according to their initial rhythms. For patients with non-shockable rhythms, the associations between IHCA outcomes, ROSC, survival to discharge

and time of epinephrine administration were analysed by logistic regression.

Results Among 349 patients with non-shockable rhythm, median time to epinephrine administration was 3 min (IQR 1–6 min). Early epinephrine administration (<5 min), compared with late epinephrine administration (>5 min), was significantly associated with the rate of ROSC (49.2% vs 34.9%; adjusted OR 1.630; 95% CI 1.008–2.635, $p=0.046$). Time to epinephrine administration (as continuous interval) was significantly associated with the rate of ROSC ($p=0.002$) and survival to discharge ($p=0.029$). After adjusting for potential confounding factors, increased ROSC remained significant but the survival to discharge lost significance.

Conclusion and relevance Our study found that time of epinephrine administration was significantly associated with better results in ROSC and survival to discharge in IHCA patients with non-shockable rhythm. When we divided IHCA patients with non-shockable rhythms into early and late administration groups, early epinephrine administration was associated with significantly improved ROSC but not survival to discharge after adjusting for potential confounding factors. Compliance rate with ACLS guidelines was >80% regarding epinephrine and much less for amiodarone. Therefore, clinical pharmacy services should focus on methods to enhance amiodarone usage in cardiac arrest.

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No conflict of interest.

5PSQ-015 COMPARING THREE CRITERIA FOR ASSESSMENT OF WHAT MEDICINES INCLUDED IN NATIONAL HOSPITAL FORMULARY ARE CLASSIFIED AS POTENTIALLY INAPPROPRIATE MEDICATIONS FOR OLDER PATIENTS

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Background and importance Some medicines are described as potentially inappropriate medications (PIM) for older patients. At least one PIM is regularly prescribed in 25–56% of hospitalised elderly patients,¹ and have been associated with adverse drug reactions in this population.

Aim and objectives To identify what medicines classified as PIM by three different tools are present in national hospital formulary of medicines (NHFM) and to check what information, if any, is in the summary of product characteristics (SmPC) about precautions in older patients.

Material and methods A search (September 2019) of the Portuguese NHFM, through the National Medicines and Health Products Authority (INFARMED) website, was made for all medicines included in the EU(7)-PIM list, in the STOPP V.2 criteria and in the 2019 Beers criteria. For each PIM found in the NHFM, the SmPC was analysed to check the recommendations made for older patients.

Results There are 242 chemical substances included in the Portuguese NHFM that were classified as PIM by at least one of the three tools. It was observed that, of these 242 chemical substances, 181 were classified as PIM by the STOPP criteria, 136 by the EU(7)-PIM list and 64 by Beers criteria. About 17% of identified PIMs were present in all three tools. About 27% of all PIM in the NHFM belonged to the ATC group C (cardiovascular system), 23% to group N (nervous system) and about 15% to group A (alimentary tract and metabolism). The SmPC of about 36% of the identified PIMs did not have special recommendations or precautions for use in older patients.

Conclusion and relevance Identification of PIM by hospital pharmacists, using adequate tools, is essential to contribute to the reduction in drug related problems in older patients.

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5PSQ-016 TOLVAPTAN ASSOCIATED CREATINE KINASE ELEVATION IN TWO PATIENTS WITH AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE

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Background and importance Autosomal dominant polycystic kidney disease (ADPKD) is a genetic disorder that causes kidney damage; the treatment goal is to postpone renal failure. The only specific treatment approved for ADPKD is tolvaptan (Jinarc, Otsuka Pharmaceutical), an arginine-vasopressin receptor antagonist taken orally—45 mg in the morning and 15 mg in the evening.

Aim and objectives To present two cases of tolvaptan associated toxicity.

Material and methods The cases were detected and monitored by a nephrologist during outpatient visits in our centre, and laboratory tests were done during this time. After a suspicion of tolvaptan associated toxicity, the electronic clinical records and laboratory tests were reviewed.

Results Case 1: a 43-year-old man with ADPKD, whose mother had ADPKD, had been using losartan, carbonate calcic, manidipine, valsartan and hydrochlorothiazide. He started tolvaptan at the lowest dose. It was well tolerated and weeks later creatine kinase (CK) plasma levels increased dramatically (table 1). Tolvaptan was stopped and CK levels recovered to baseline levels. The patient reported he felt better after treatment discontinuation.

Case 2: a 41-year-old man with ADPKD, whose mother and siblings were also affected, was treated with enalapril, amlodipine and allopurinol. He started tolvaptan at the lowest dose with good tolerance. An increase in CK was detected, treatment was stopped (all other treatments continued) and CK plasma levels declined (table 1).

Abstract 5PSQ-016 Table1 Evolution of CK and creatinine plasma concentrations

	Date	Treatment duration (days) (*days after treatment cessation)	CK levels (UI/L) (55–171 UI/L)	Creatinine (mg/dL)
Patient No 1	11/12/2018	11	264	1.73
	19/12/2018	19	585	1.74
	27/12/2018	*7	356	1.72
	09/01/2019	*20	278	1.8
	15/02/2019	*36	244	1.64
	13/03/2019	*65	308	1.88
	17/03/2019	*69	312	1.82
	29/05/2019	*161	248	1.82
	10/05/2019	5	153	1.62
Patient No 2	22/05/2019	17	854	1.65
	24/05/2019	*1	712	1.65
	30/05/2019	*8	304	1.76
	05/06/2019	*13	358	1.72
	30/06/2019	*28	167	1.58

Neither patient No 1 nor patient No 2 showed clinical symptoms. They reported that they had not taken other treatments and had occasionally performed moderate exercise, as usual. In the absence of other justifications, according to the *Naranjo* causality assessment, it was probable (6 points) that tolvaptan caused hyperCKaemia.

Conclusion and relevance These are the first cases of tolvaptan induced hyperCKaemia reported. HyperCKaemia could be common in ADPKD patients taking tolvaptan and might be underestimated. It is advisable to monitor CK serum concentrations in these patients.

REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

5PSQ-017 PCSK-9 INHIBITORS: REAL WORLD EFFECTIVENESS

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Background and importance Pharmacological therapy for hypercholesterolaemia aims to reduce circulating low density lipoprotein (LDL) concentrations. A new therapy for patients who fail to achieve the desired targets consists of monoclonal antibodies that selectively and irreversibly bind proprotein convertase subtilisin/kexin type 9 (PCSK9) to prevent its binding to the LDL receptor (LDL-R)/LDL complex on the surface of hepatocytes. Increased LDL-R liver levels result in serum reduction of LDL cholesterol.

Aim and objectives The aim of this study was to define the effectiveness of two inhibitors, alirocumab and evolocumab, using changes in lipid parameters and ratios of patients during therapy. Furthermore, an additional goal was calculation of the 10 year cardiovascular risk according to the Framingham Heart Study algorithm that includes age, sex, systolic pressure, smoking, diabetes, antihypertensive therapy, LDL, high density lipoprotein (HDL) and total cholesterol.

Material and methods The study was conducted from May 2017 to September 2018. The 120 enrolled patients had at least a 6 month re-evaluation. Data were extracted from the