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Upton, Sarah, Culshaw, Michael, Culshaw, Margaret and Stephenson, John

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A preliminary study identifying prescription factors associated with readmission

Sarah Upton [a,b], Michael Culshaw [a], Margaret Culshaw [b], John Stephenson [b]
[a] Calderdale and Huddersfield NHS Foundation Trust, [b] University of Huddersfield

Background

The LACE index (1) is used by Calderdale and Huddersfield NHS Foundation Trust to refer patients to a Virtual Ward, providing post discharge support with a view to preventing readmissions. Derivation of the LACE index found the Charlson comorbidity index (CCI) predictive of readmission; conditions in the CCI are likely to be treated with medication.

Aim & Objectives

As part of a project exploring whether prescription information could be used to identify patients at risk of readmission, the aim of this study was to determine whether prescription of cardiovascular medication at discharge is associated with readmission.

Method

All discharge prescriptions (TTOs) from Calderdale Royal Hospital Medical Short Stay Unit between 28th October and 22nd December 2013 were categorised according to whether cardiovascular medication, as listed in BNF Chapter 2 (2) (fig. 1) was prescribed or not. TTOs with the clause "no changes to regular medication" applied were excluded due to the absence of a medication list. Patient outcome at 30 days was recorded as readmitted or not readmitted; patients who died within 30 days were accounted for to ensure accurate readmission calculation. Data collected were not identifiable. Data were analysed by Pearson's chi-square test and phi coefficient using IBM SPSS Statistics version 22.
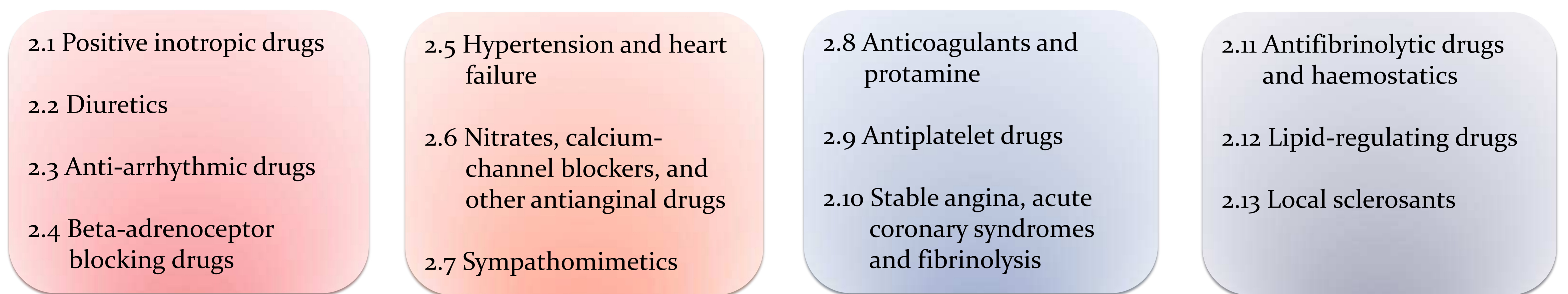
2.1 Positive inotropic drugs

2.2 Diuretics

2.3 Anti-arrhythmic drugs

2.4 Beta-adrenoceptor blocking drugs

2.5 Hypertension and heart failure

2.6 Nitrates, calcium-channel blockers, and other antianginal drugs

2.7 Sympathomimetics

2.8 Anticoagulants and protamine

2.9 Antiplatelet drugs

2.10 Stable angina, acute coronary syndromes and fibrinolysis

2.11 Antifibrinolytic drugs and haemostatics

2.12 Lipid-regulating drugs

2.13 Local sclerosants

Figure 1: BNF Chapter 2 - Cardiovascular System

Results

Two hundred seventy-nine discharges were processed during the study period. Fifteen TTOs were excluded due to stating "no changes…" rather than listing medication. Eleven patients (4%, 11/264) died and 41 patients (16%, 41/253) were readmitted within 30 days. A slight but statistically significant association between cardiovascular medication prescribed on discharge and readmission was observed ($p=0.023$, $\phi=0.143$): 151 patients were prescribed cardiovascular medication of whom 31 (21%, 31/151) were readmitted (fig. 2), compared with 102 patients not prescribed cardiovascular medication of whom ten (9.8%, 10/102) were readmitted.

Discussion

The results demonstrate that information on discharge prescriptions could be used by pharmacists conducting prescription validation to identify patients at risk of readmission. The findings also indicate where efforts to reduce readmissions may be effectively targeted. Further work will be undertaken to extend the analysis to include other medications, as well as refine the analysis into therapeutic class. The next phase of the project will involve evaluating the effectiveness of pharmaceutical interventions in reducing readmissions.

253 patients discharged were surviving at 30 days

151 (60%) were prescribed cardiovascular medication

31 (21%) patients prescribed cardiovascular medication were readmitted

Figure 2: Patients discharged, prescribed cardiovascular medication, and prescribed cardiovascular medication & readmitted.

References

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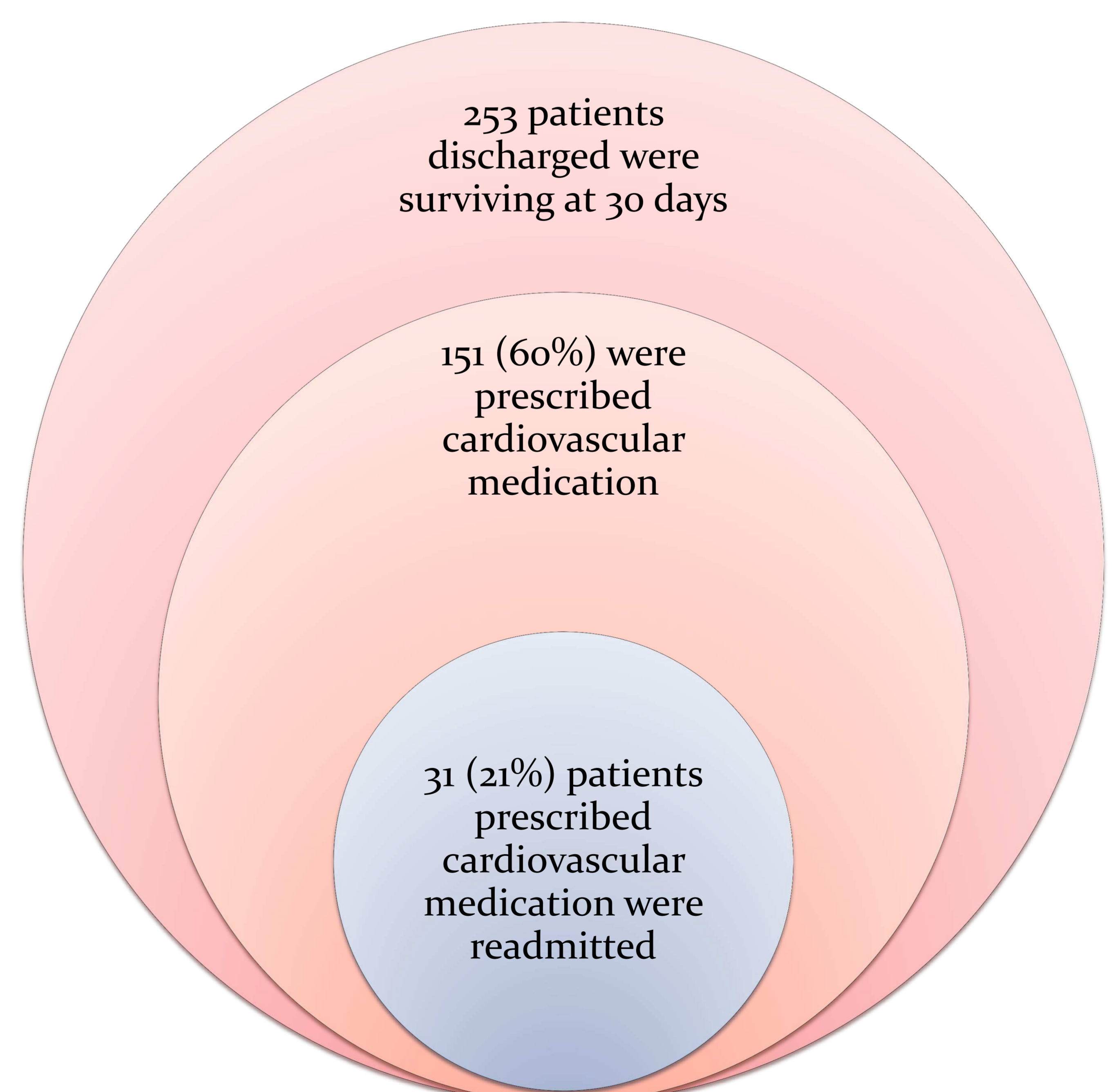
Sarah.Upton@hud.ac.uk

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