Increased use of newer therapeutic agents (figure).

were diagnosed (1990-99: 30.1%; 2000-09: 12.7%) and for those diagnosed procedure within 3 months of diagnosis, of which 60% were before 2010. Over years; 77.1% were diagnosed below the age of 50. Fifteen individuals had this time from ITP diagnosis to having a splenectomy was 1.4 (IQR 0.5-3.9) x10^9/L but to a lesser extent. Bleed from the respiratory system (9.24%), Anti-D (6.5%) and eltrombopag (6.1%), whereas 19.5% had no treat-
ment. A similar pattern of treatment was found for platelet counts ≥50 cells (4.7%). Throughout the entire cohort history, common treatments were prednisolone (86.1%), IVIg (34.3%), Anti-D (2.5%), whereas 19.5% had no treat-
ment for those with platelet counts <50 x10^9/L and bleed within 3 months of diagnosis, there was a significant association with use of both 1st and 2nd line treatment. A similar pattern of treatment was found for platelet counts ≥50 x10^9/L but to a lesser extent. Bleed from the respiratory system (e.g. haemop-
tysis), gastrointestinal system (e.g. oral) and obstetric/gynaecological-related ones were associated with receiving transfusion (including platelet). The medi-
time from ITP diagnosis to having a splenectomy was 1.4 (IQR 0.5-3.9) years; 77.1% were diagnosed below the age of 50. Fifteen individuals had this procedure within 3 months of diagnosis, of which 60% were before 2010. Over the last 2 decades there has been a decrease in the overall number of splenc-
tomies carried out (and in relation to the year that the splenectomised patients were diagnosed [1990-99: 30.1%; 2000-09: 12.7%]), and for those diagnosed within the last five years, 4.4% had this procedure. The same time periods saw increased use of newer therapeutic agents (figure).

Summary/Conclusions: Patients with low platelet and bleeding within the 1st three months of ITP diagnosis were likely to receive both 1st and 2nd line treatment options. Notable, is the decline of splenectomy as 2nd line treatment, while there are different drug options available. It would be important to increase the cohort size, including expanding internationally, to obtain more treatment data on higher number of patients who received 2nd line treatment options and long-term follow up data.

Coagulation - Clinical Research

P409
Efficacy and Safety of Rivaroxaban for Non-Valvular Atrial Fibrillation in Patients with Severe Renal Impairment
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Background: Patients with atrial fibrillation and severe renal impairment (CrCl <30ml/min) were excluded from the ROCKET-AF study and, indeed, most of the seminal phase 3 DOAC studies in atrial fibrillation. However, the summary of product characteristics states that rivaroxaban may be used at a reduced dose of 15mg OD for anti-coagulation management of atrial fibrillation in patients with severe renal impairment (GFR 15-29 ml/min). This recommendation was solely based on pharmacokinetic analyses and has not been validated in a clinical study.

Aims: Assess safety and efficacy of rivaroxaban (15mg OD) in patients with atrial fibrillation and severe renal impairment (CrCl 15–29 ml/min). The primary safety point is occurrence of bleeding complications.

Methods: Retrospective cohort analysis of 30 patients with non-valvular atrial fibrillation and severe renal impairment who were commenced on rivaroxaban (15mg OD) in our anti-coagulation clinic between October 2012 and March 2015. Medical notes were reviewed and general practitioners were contacted by telephone or fax. Information collected included age, weight, CHA2DS2-Vasc and HAS-BLED scores, baseline blood investigations (CrCl, FBC, LFT and clotting screen) and where available blood investigations at the time of the bleeding event.

Results: A total of 30 patients were retrospectively followed up for a minimum of 10 months. The majority of patients were female (83.3%) with a median age and weight of 89.5 years and 54 kilograms respectively. Median CrCl of 26.39 ml/min during the follow up period. 11 patients died (37%), one of whom died of massive gastrointestinal bleeding after being switched from rivaroxaban to warfarin due to worsening renal function. The cause of death for one patient could not be obtained, however there were no documented deaths due to rivaroxaban as a primary or contributing cause. A total of 6 rivaroxaban related bleeding events were identified with two events occurring in one patient. Bleeding sites included nasal (epistaxis), gastro-intestinal and genitourinary tracts but there were no inci-
dents of intracranial haemorrhage or major bleeding as defined by the Interna-
tional Society on Thrombosis and Haemostasis. A patient who discontinued rivaroxaban due to haematuria later developed acute limb ischaemia requiring embolectomy. Although compliance to treatment could not be assessed, a further patient developed an ischemic stroke whilst on rivaroxaban.

Summary/Conclusions: Clinically relevant bleeding events occurred in approximately 17% of our small cohort of very elderly patients with severe renal impairment receiving rivaroxaban (15mg) as anti-coagulant therapy for non-valvular atrial fibrillation. The event rate is almost identical to that in the Rocket-AF study (16.7%) and there were no major bleeding events. Our find-
ings indicate that the use of rivaroxaban in this group of patients is feasible and relatively safe.

P410
Oral Direct Anticoagulants in the Treatment of Nonvalvular Atrial Fibrillation: Results of the Daily Clinical Practice
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Background: Atrial fibrillation (AF) is the most common arrhythmia. It leads to significant morbidity and mortality. The new oral anticoagulants (NOAC) represent an improvement compared with standard treatment (vitamin K antag-
ognists (AVK)) in the prevention of thromboembolic complications in patients with non-valvular AF.

Aims: The aim of this study is to analyse the clinical characteristics of the patients (p) anticoagulated with NOAC and compared these with those taking AVK, as well as to assess their effectiveness and safety. The primary study outcome was the composite of stroke, systemic embolism, pulmonary embolism, myocardial infarction or death (MACE). The primary safety outcome was major haemorrhage.

Methods: We studied 688 p with a diagnosis of NVAF between November 2011 and November 2014. We made a prospective analysis, with a median follow-up of 14 months.

Results: A total of 688 p were included with a mean age of 73.4±7.9 in the AVK group vs 73.9±8.3 in the NOAC group (p=0.432). In the NOAC group,
hypertension was significantly more common (82.3% vs 92.2%, p<0.001), with more frequent history of heart failure (15.3% vs 30.4%, p<0.001), and more history of stroke or transient ischemic attack (10% vs 15.9%, p=0.022). Mean scores for thromboembolic and bleeding risk indices are shown in Table 1.

### Table 1.

<table>
<thead>
<tr>
<th>SCORE</th>
<th>ACENOCOUMAROL</th>
<th>NOAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHADS2</td>
<td>1.9±1.0</td>
<td>2.3±1.1</td>
</tr>
<tr>
<td>CHA2DS2-VASc</td>
<td>3.5±1.3</td>
<td>3.9±1.5</td>
</tr>
<tr>
<td>HASBLED</td>
<td>1.3±0.7</td>
<td>1.4±0.7</td>
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</tbody>
</table>

The primary outcome occurred in 12 p receiving AVK (2.9%) and 11 p receiving NOAC (4.1%) (p=0.43) (HR acenocoumarol vs NOAC 1.73; IC 95%: 0.780-3.969, p=0.190). MACE were more common in patients with poor INR control (58.3% vs 41.8%, p=0.037). In the univariate analysis, the factor associated with MACE in the AVK group was the poor INR control (4.009 (1.266-12.698), p=0.018), showing the sex female a strong trend to be a protective factor (0.228 (0.050-1.043), p=0.057). In the NOAC group, valvulopathy moderate (3.840 (1.166-12.652), p=0.027) and renal insufficiency (7.197 (1.743-29.772), p=0.006) were significantly associated with MACE. The rate of major bleeding was 3.51% with AVK, as compared with 0.6% per year in the group that received NOAC (17 events -4.1% vs 2 events, 0.7%, p=0.009) (figure 1; HR acenocoumarol vs NOAC 0.252; IC 95%: 0.058-1.01, p=0.067). In the univariate analysis, the factors associated with bleeding in the AVK group were age ≥75 years (3.187 (1.029-9.882), p=0.045) and HASBLED score (2.106 (1.072-4.136), p=0.031). The rate of intracranial bleeding was 1.02% with AVK compared with 0.34% per year in NOAC group (5 events – 1.2% vs 1 event – 0.4%, p=0.248). There were no significantly differences in the rates of gastrointestinal bleeding (1.02% with AVK vs 0.94% per year, p=0.902) neither minor bleeding (4.88% with AVK vs 3.51% per year, p=0.309). There was a significantly higher rate of discontinuation with AVK (17.14% vs 6.68% per year, p<0.001).

Figure 1.

Summary/Conclusions: Patients with NVAF anticoagulated with NOAC have higher embolic risk than those that receive acenocoumarol. No differences were found in efficiency. Patients anticoagulated with NOAC show a trend to lowering bleeding risk. In the multivariate analysis, the predictors of events in the acenocoumarol group were the male category, poor INR control, ≥75 years, anemia and HASBLED score. The predictors of events in the NOAC group were valvulopathy moderate, renal insufficiency and anemia.

P411

**SWITCH FROM VKA, LMWH OR FONDAPARINUX TO DOACS IN THE CLINICAL PRACTICE**

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**Background:** New oral anti-coagulant drugs (NOACs) are largely used both in AF (Atrial Fibrillation) and in VTE (Venous Thromboembolism) and, due to their important advantages over older drugs, many patients have been switched from VKA (Vitamin K antagonists), LMWH (Low Molecular Weight Heparin) or Fondaparinux to NOACs. Current recommendations by scientific society suggest switching from VKAs to NOACs according to the INR test result. Regarding how to switch from Fondaparinux or LMWH to NOACs the suggested wash out period is 24 hours.

**Aims:** To assess whether high concentrations of Hgb is an independent risk factor for thrombotic events.

**Methods:** Hgb measurements and baseline characteristics were obtained from participants in the Reykjavik-AGE study at enrollment in 2002. The Reykjavik-AGE study, a nationwide screening study of 5755 elderly individuals, includes thorough medical history, physical examination, and blood measurements. Lifetime events of thrombotic events were recorded up to 2015 in the Icelandic National Health Service and linked to the participants of the study through the National Registry. Primary outcomes of arterial and venous thrombosis were considered separately 10 years before and after enrollment. Hgb measurements at enrollment were used to determine exposure, both as a continuous variable in steps of 10g/L and stratified into five strata (<130, 130-144, 145-159, 160-175 and >175g/L for men and <120, 120-134, 135-149, 150-160, >160g/L for women). Men with Hgb concentration >120-144g/L and women with Hgb concentration of 120-134g/L were used as reference. Cox proportional hazard regression was used for the statistical analyses and adjusted for confounders (gender, age, body mass index (BMI), diabetes mellitus, smoking, hypertension, and statin use) in three different models.

**Results:** Analysis of Hgb concentration as a continuous variable in steps of 10g/L revealed increased risk of arterial and venous thrombosis with increasing Hgb concentration (hazard deviation (SD) 1.06 95% confidence interval (CI) [1.04-1.09], p=0.001 and HR 1.08 95% CI [1.05-1.10], p=0.001). Adjustment for confounders revealed a reverse effect (HR 0.92 95% CI [0.89-0.94] <0.001 and HR 0.89 95% CI [0.87-0.92] <0.001). After excluding anemic patients (Hgb <130g/L for men and <120g/L for women) there was however, no association (Table 1). Crude analyses using stratified Hgb levels, revealed increased risk of arterial and venous thrombosis associated with high Hgb (Hgb: 160-175g/L for men and 150-159g/L for women. HR 1.10 95% CI [1.02-1.20] p=0.02 and HR 1.17 95% CI [1.07-1.29] p=0.001). After adjusting for gender, age, and BMI, this association was no longer evident.

There was however, marginal increased risk of venous thrombosis in those with slightly higher Hgb concentrations than the reference group (Hgb: 145-160g/L for men and 130-144g/L for women. HR 1.10 95% CI [1.02-1.19] p=0.03 and HR 1.17 95% CI [1.07-1.27] p=0.001). After adjusting for gender, age, and BMI, this association was no longer evident.

**Summary/Conclusions:** Safety and efficacy of switching anticoagulant therapy in our center are really satisfying compared to the studies that closely monitored INR to adjust anticoagulant therapy switching, suggesting that monitoring INR may not be routinely needed for the switched. Further studies are needed to confirm these findings.