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Mass screening for silent atrial fibrillation in high risk patients- preliminary results from the STROKESTOP trial
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Background: Atrial fibrillation (AF) is a frequent source of cardiac emboli in patients with stroke. AF may be asymptomatic and therefore undiagnosed. As oral anticoagulation (OAC) treatment is highly effective for stroke prevention, screening for silent AF seems suitable in risk populations. Above the age of 75, the current guidelines recommend OAC for AF, even in the absence of other risk factors. We hypothesize that AF screening in this age group will reduce stroke incidence.

Methods: All inhabitants in Stockholm County and Region Halland, Sweden age 75-76 years (n=25,415) are randomized in a 1:1 fashion either to be invited to a screening program for AF or to act as a control group. In the screening group, participants are invited to undergo intermittent ambulatory ECG recordings during two weeks. Participants in whom AF is detected are offered OAC treatment.

Screening and control groups will be followed prospectively for 5 years with regard to thromboembolic events, bleeding and mortality.

Results: During a 10-month period, 10,503 inhabitants in the screening arm had been invited and 4783 (46%) participated. Previously undiagnosed AF was found in 131 (3%) of participants and another 85 (2%) have been identified with AF in the absence of other risk factors. We factors. We hypothesize that AF screening in this age group will reduce stroke incidence.

Conclusion: Population based AF screening in a 75-year old population identifies 5% of the population as new candidates for OAC treatment due to AF. There is considerable local and regional variation in participation in the screening program.

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Dabigatran use in Danish atrial fibrillation patients in 2011: a nationwide study
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Purpose: Dabigatran was recently approved for anticoagulation in patients with Atrial Fibrillation (AF); data regarding real-world use, comparative effectiveness, and safety is sparse.

Methods: From nationwide registers, we identified patients with an in hospital or outpatient-clinic AF diagnosis who claimed a prescription of dabigatran 110 or 150 mg, or warfarin, between August 22nd and December 31st, 2011. Hazard ratios for thromboembolic events (ischemic stroke, transitory ischemic attack, and peripheral artery embolism) and bleedings were estimated using Cox regression analyses, in all patients and stratified by previous Vitamin K antagonist (VKA) use, defined as a claimed prescription of warfarin 180 days before the AF diagnosis.

Results: Overall, 1,612 (3.1%) and 1,114 (2.1%) claimed a prescription of dabigatran 110 mg and 150 mg, and 49,640 (84.8%) of warfarin. Patients treated with dabigatran 150 mg were younger with less comorbidity than those treated with dabigatran 110 mg and warfarin, as was VKA naive compared with VKA experienced patients. Recommendations set by the European Medicine Agency for dabigatran were met in 90.3% and 55.5% of patients treated with 110 mg and 150 mg. Patients treated with 150 mg dabigatran, who did not fulfill the recommenda-
tions by European Medicine Agency were >80 years (3.8%), patients with liver (1.5%) and kidney (3.2%) disease, and patients with previous bleeding (7.0%). Complete definition of the patients associated with dabigatran 110 mg and 150 mg was HR 3.52 (1.40-8.84) and HR 5.79 (1.81-18.56), in VKA experienced patients; and HR 0.95 (0.47-1.91) and HR 1.14 (0.60-2.16) in VKA naive patients. All-cause mortality and bleeding risk was higher in VKA experienced patients receiving dabigatran 110 mg, but not in patients with 150 mg dabigatran, nor in the VKA naive users.

Conclusion: Deviations from recommended use of dabigatran were frequent among patients treated with 150 mg. With cautious interpretation, dabigatran use in VKA naive patients seems safe. Increased risk of thromboembolism and bleeding with dabigatran amongst VKA experienced users may reflect patient selection and “drug switching” practices.

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Apixaban versus warfarin in patients with atrial fibrillation and valvular heart disease: findings from the ARISTOTLE study
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Purpose: Apixaban is indicated for the prevention of stroke and systemic embolism (SE) in pts with non-valvular AF. In this context, valvarus refers only to clinically significant mitral stenosis (MS) and not other valvular heart disease (VHD).

Methods: We used data from 18,197 pts with AF and ≥1 risk factor for stroke in ARISTOTLE with available information on VHD. Pts with clinically significant MS and mechanical heart valves were not eligible. Of these, 4808 (26.4%) had VHD defined by any history of at least moderate mitral regurgitation (3526), MS (131), aortic regurgitation (887), aortic stenosis (384), tricuspid regurgitation (2124), or valve surgery (201). We compared the effect of apixaban vs. warfarin on rates of stroke or SE and major bleeding in pts with and without VKH using Cox proportional hazards modeling.

Results: Pts with VHD were older, had more prior MI and prior bleeding, had a higher mean CHADS2 score, and had less hypertension and diabetes than pts without VHD. Pts with VHD had higher rates of stroke or SE and bleeding than pts without VHD. The benefits of apixaban compared with warfarin in reducing stroke and SE (interaction p=0.38), causing less major bleeding (interaction p=0.23), and decreasing death (interaction p=0.10) were consistent irrespective of the presence of VHD (Fig).

Conclusions: Pts with AF and VHD are at high risk for thromboembolic events and bleeding. Apixaban was similarly efficacious and safe in AF pts with and without VHD. Additional research is needed on the efficacy and safety of apixaban in pts with AF and VHD, particularly those with clinically significant MS and mechanical prosthetic valves.

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Efficacy and safety of rivaroxaban compared with warfarin in patients with peripheral artery disease and non-valvular atrial fibrillation: insights from ROCKET AF
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Purpose: We performed a post-hoc analysis of the association between peripheral artery disease (PAD) and outcomes in AF patients and the safety and efficacy of rivaroxaban in AF patients with PAD.

Methods: ROCKET AF was a double-blind, double-dummy, randomized con-
trolled trial comparing rivaroxaban and warfarin for the prevention of stroke or systemic embolism (per 100 pt-years) by intention-to-treat. The primary safety endpoint was the composite of major and non-major clinically relevant (NMCR) bleeding in patients while on study drug.

**Results:** A total of 839 (9.9%) patients in ROCKET AF had PAD. PAD patients had higher mean CHADS2 scores (3.7 vs 3.5; p < 0.001). Patients with and without PAD (group A vs group B) were younger (69 ± 11 vs 74 ± 11 years; p < 0.001), with lower calculated CHADS2 score (1.72 ± 1.2 vs 2.45 ± 1.3; p < 0.001) and had fewer comorbidities. Overall, the antithrombotic strategy in group A was antiplatelets therapy in 39% and vitamin-K antagonists (VKA) therapy in 41% of patients. In group B, the respective rates were 23% and 68% (p < 0.001 vs group A). VKA was prescribed less often in group A vs group B, patients at all CHADS2 levels of 19% vs 56%, in CHADS2=2: 34% vs 72%, and in CHADS2=3: 51% vs 71%; p < 0.001). After correcting for age and CHADS2 score, paradoxical AF was less likely to be treated with VKA (OR 0.101, p < 0.001).

**Conclusion:** In this representative nationwide registry of AF, we found that, contrary to existing guidelines, paradoxical AF is treated less intensively than permanently AF. It seems that the decision to use VKA depends more on the type of AF than the calculated risk. Moreover, patients with permanent AF but at low risk seem to receive more VKA than needed. At national level, efforts to base therapeutic decisions on thromboembolic risk using the appropriate scores to increase awareness of the risks of paradoxical AF are needed.

**Methods and results:** Acute LV injury was induced by occlusion and reperfu- sion of the left circumflex artery in adult, male swine (45kg). In three groups (n=2/group), a TH pump, Impella 5.0 LP, or ECMO were percutaneously deployed while leaving the chest wall intact. Conduit catheterization for pressure-volume loop analysis and 3D-speckle tracking echocardiography were performed before and after device activation. Compared to baseline, maximal activation of the TH (Fig A) provided 3.9 liters per minute (LPM), reduced LV stroke work (LVSW: 2363±153 vs 533±59, p < 0.02), end-diastolic volume (125±9 vs 97±3; p < 0.05), stroke volume (72±4 vs 43±6, p < 0.05), global circumferential (-9±2 vs -1±2, p < 0.05) and radial strain (10±2 vs 4±0.3, p < 0.05). Impella activation (Fig B) provided 4 LPM and reduced LVSW (1113±180 vs 528±10, p < 0.02) without affecting LV volumes or strain. ECMO activation (Fig C) provided 3.5 LPM and did not affect LVSW, increased arterial elastance (Ea; 2.8±1 vs 7.6±1, p < 0.05), increased +dP/dt (850±85 vs 171±42, p < 0.05), end-systolic pressure (60±9 vs 106±11, p < 0.05), mean arterial pressure (49±3 vs 78±7, p < 0.05), and circumferential strain (-3.0±0.3 vs -6.0±0.9, p < 0.05).

**Fig 1**

**Conclusion:** Percutaneous circulatory support devices generate distinct hemodynamic profiles. In contrast to both the TH and Impella devices, ECMO did not reduce LVSW and increased both Ea and MAP. Sourcing of the LV either directly or via the left atrium reduces stroke work with no impact on Ea. Ongoing analysis may impact device selection and design.

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**Impact of load dependency of right ventricular performance on decision making before ventricular assist device implantation**

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**Purpose:** Left ventricular assist devices (LVADs) provide better quality of life than conventional medical therapy for end-stage heart failure patients, but it is a challenge to evaluate right ventricular (RV) function and to predict postoperative time-course after LVAD implantation. RV failure (RVF) after LVAD implantation appeared related to preoperative RV geometry and tricuspid regurgitation (TR) which are highly load sensitive parameters. We assessed the impact of load dependency in RV performance before and after LVAD implantation aiming to improve preoperative decision making.

**Methods:** We evaluated our patients with LVAD implantation after 1/2006. RV anatomic and functional parameters plus invasively measured data on pulmonary hemodynamics, all collected prospectively before LVAD implantation, were tested for relationship with postoperative RV function and patient outcome. Echocardiography including tissue Doppler and strain imaging was used to evaluate RV size, geometry and function. Exclusion criteria were atrial fibrillation, pacemaker dependency, a tricuspid valve prosthesis, chronic dialysis therapy, and age less than 18 years.

**Results:** A total of 205 (45 with and 160 without postoperative RVF) were eligible for inclusion in the evaluation. There were significant differences in preoperative RV short/long axis (SL) and long axis/length/area (LA/area) ratios, tricuspid annulus peak systolic velocity (TAPsSm), RV peak global systolic longitudinal strain rate (PGLSsr), pressure gradient between RV and right atrium (APRWRA), RV velocity-time integral (VTI/TR) and pulmonary arterial pressure (PAP) between the two patient groups (p < 0.05). High predictive values (up to 92.5%) for postoperative RVF were found for SL ≥0.6, TAPsSm <80cm/s and PGLSsr <0.6 in patients with maximum APr[RV-RA] <35mmHg. These parameters also appeared predictive for RVF in patients with TR grade II and PAP <50mmHg.

S/L ≥0.6, TAPsSm <80cm/s and PGLSsr <0.6 in patients with maximum APr[RV-RA] <35mmHg.