All pts were evaluated according to the recommendations of the ESC Task Force on Syncope. Pts were assigned to 2 age groups: $<$65 yrs (Gr. A: 136 pts, mean age 45$\pm$15 yrs) and $\geq$ 65 yrs (Gr. B: 353 pts, mean age 77$\pm$7 yrs). Compared to pts of Gr. A, those of Gr. B had a older age of first faint (41$\pm$17 yrs Gr. A vs 74$\pm$11 yrs Gr. B p = 0.0001), a higher rate of comorbidities (21% Gr. A vs 60% Gr. B, p=0.0001), and a higher number of drugs (0.93$\pm$1.3 Gr. A vs 2.33$\pm$2.0 Gr. B, p=0.001). After clinical evaluation nitrate-potentiated HUT was performed in 363 pts (positive 38% Gr. A vs 39% Gr. B, p=n.s.), carotid sinus massage in 451 pts (positive 4.5% Gr. A vs 19% Gr. B, p=0.003), EPS in 39 pts (6.6% Gr. A vs 8% Gr. B, p=n.s.), ILRs in 34 pts (5% Gr. A vs 7.6% Gr. B, p=n.s.). A final diagnosis was obtained in 115 pts of Gr. A and in 269 pts of Gr. B [vasovagal syncope 48% Gr. A vs 27% Gr. B (p=0.002), orthostatic hypotension 1.4% Gr. A vs 4% Gr. B (p=n.s.), arrhythmic cause 12% Gr. A vs 12% del Gr. B (p=n.s.), heart disease cause 3% Gr. A vs 9% Gr. B (p=0.03), non sincopal condition 12% Gr. A vs 5% Gr. B (p=0.03), carotid sinus syncope 7% Gr. A vs 18% Gr. B (p=0.002)]. Syncope was unexplained in 15% (Gr. A) and 24% of the pts (Gr. B) (p=0.02). On follow-up (mean 54$\pm$17 months, median 49) syncope recurrence was noted in 142 pts (22% Gr. A vs 32% Gr. B, p=0.03), major therapeutic procedures (pacemaker, ICD and ablation) in 96 pts (8% Gr. A vs 24% Gr. B, p=0.001) and all-cause mortality in 105 pts (3.6% Gr. A vs 28% Gr. B, p=0001). On multivariate Cox analysis the number of drugs (Wald χ^2 = 9.515, p = 0.002, Exp (β) = 1.380, IC 95% 1,125-1,693) in the Gr. A and the age of first faint (Wald χ^2 = 8.304, p = 0.004, Exp (β) = 1.068, IC 95% 1,021-1,118) and the number of drugs (Wald χ^2 = 6.709, p = 0.01, Exp (β) = 1.380, IC 95% 1,172-1,321) in the Gr. B were found to be predictive of all-cause mortality. In conclusion a) the older pts have more often a carotid sinus syndrome as syncopal cause, but also a higher rate of unexplained syncope, a more frequent syncope recurrence than the younger pts; b) politherapy is a common risk factor for fatal events in both groups, suggesting a considerable role of comorbidities, but also possible cause of adverse events.

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Additional diagnostic value of implantable loop recorder for differentiating syncope from non-syncopal forms of transient loss of consciousness

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Background: Non-syncopal transient Loss Of Consciousness (T-LOC) are disorders that sometimes resemble syncope and differential diagnosis with syncope may be challenging. Implantable Loop Recorder (ILR) is potentially useful but it has never been systematically assessed.
Aim of the study: To evaluate the diagnostic value of ILR in patients for differentiating syncope from non-syncopal forms of transient loss of consciousness.
Methods and results: We implanted a ILR in 58 patients (mean age70$\pm$12 years, 25 males) who had had 4.6$\pm$2.3 episodes of T-LOC in order to differentiate epilepsy from syncope (#28), unexplained fall from syncope (#29) and psudosyncope from syncope (#1). After 20$\pm$13 months of follow-up, 33 patients (57%) had a spontaneous event documented by ILR: asystole in 12 patients, tachyarrhythmia in 3, no arrhythmia in 18. Final diagnosis was: syncope in 17 (29%) patients (arrhythmic in 15, hypotensive in 2), epilepsy in 6 (10%) patients and fall in 10 (17%) patients. In 1 patients both syncope and epilepsy coexisted. Therapy: antiepileptic drugs in 6 (10%), pacemaker implantation in 11 (19%), antiarrhythmic drugs in 4 (7%), reduction of hypotensive drugs in 1 patient (2%). No specific therapy in 11 patients (18%).
Conclusions: ILR provides an additional diagnostic value in difficult patients with initial diagnosis of non syncopal T-LOC

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Neurally mediated syncope prediction based on heart rate and pulse arrival time

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Background: Neurally mediated syncope (NMS) is a common disorder resulting in falls and accidents. We previously developed a syncope warning system based on wearable sensor technologies in order to predict NMS. Herein, we prospectively validated the underlying algorithms based on heart rate (HR) and pulse arrival time (PAT).
Methods: In 44 patients with a history of unexplained syncope 70° head-up tilt table testing (HUTT) was conducted during beat-to-beat analysis of HR and PAT. After initial adaption to tilting an individual syncope risk score was calculated and the predictive value of detecting the slope of HR and PAT changes tested. Combinations of two different methods of PAT calculation (R-wave to pulse wave onset vs R-wave to pulse wave peak) and two different prediction algorithms were compared.
Results: In 21 (48%) patients syncope occured during HUTT and could be predicted in all cases (sensitivity: 100%, specificity: 55%) at 203$\pm$227s before loss of consciousness. In 15 (71%) of those patients syncope was predicted before the onset of any prodromal symptoms (222$\pm$318s). Optimized combination of PAT calculation and prediction algorithm yielded more balanced prediction characteristics (sensitivity: 81%, specificity: 85%).
Conclusion: Changes in heart rate and pulse arrival time reliably predict NMS. This observation might pave the way for the development of ambulatory syncope prediction devices; a possible means to protect patients with recurring NMS.

HEART FAILURE: OLD DRUGS WITH NEW TRICKS

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Left atrial dilatation as a predictive factor of beneficial response to carvedilol in patients with HFPEF: A finding from the Japanese Diastolic Heart Failure study (J-DHF)

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Purpose: Therapeutic strategy for Heart Failure with Preserved Ejection Fraction (HFPEF) has not been established. Recently, the Japanese Diastolic Heart Failure Study (J-DHF), a multicenter, prospective, randomized, open, blinded endpoint (PROBE) trial to assess the effects of β-blocker, carvedilol, in HFPEF patients in Japan, has suggested beneficial effects of the standard-dose, not the low-dose, prescription of carvedilol in HFPEF patients. However, it is unclear whether any factor could predict the effects of the standard-dose carvedilol in HFPEF.
Methods: Data from 245 HFPEF patients in J-DHF were evaluated to clarify demographic, clinical, echocardiographic and biological variables that are related to the primary outcome (a composite of cardiovascular death and unplanned hospitalization for heart failure) and another major outcome (a composite of cardiovascular death and unplanned hospitalization for any cardiovascular causes). We also analyzed the interaction between these clinically relevant factors and the response to standard-dose carvedilol in the proportional hazard model.
Results: Aging, decreased body mass index, diabetes mellitus, history of hospitalization for heart failure, anemia, renal dysfunction, increased plasma B-type natriuretic peptide, left ventricular (LV) hypertrophy, and left atrial (LA) dilatation were prognostic factors for both clinical outcomes. In the patients with LA diameter $\geq$ 43.2mm (the median value), standard-dose carvedilol was associated with hazard ratio (HR) 0.263 (95% confidence interval (CI):0.080 to 0.859) for the primary outcome, but in those with LA diameter $<$ 43.2mm, HR was 1.123 (95% CI:0.501 to 2.514). A p value for the interaction was 0.0462. For another major outcome, HR was 0.257 (95% CI:0.092 to 0.715) in the patients with LA diameter $\geq$ 43.2mm and 0.783 (95% CI:0.393 to 1.561) in those with LA diameter $<$ 43.2mm, and a p value for the interaction was 0.0764. The other prognostic factors did not influence the response to standard-dose carvedilol.
Conclusions: As LA dilatation is a sign of LV diastolic dysfunction, the current results suggest that the beneficial effects of standard-dose carvedilol are provided in HFPEF patients with advanced rather than modest diastolic dysfunction.

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Long term adherence in primary care versus a specialized heart failure clinic for outpatients with systolic heart failure

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Purpose: Most European countries have implemented Heart Failure (HF) clinic programs to educate the patients in self-care and optimize doses and adherence of neurohormonal blockade. The optimal duration of the HF clinic program is, however, unknown. This study was, therefore, designed to evaluate the effect of extended follow up in an outpatient HF clinic on long-term adherence to guideline based therapy.
Methods: Multicenter (18 HF clinic's) randomized clinical trial. After education in self-care and optimization in guideline therapy in HF clinic systolic HF patients (N=921) were randomized to either extended follow up the HF clinic (N=461) or discharge to the primary care (N=460) and the patients were followed for a median of 2.5 years (range: 3 months-4.5 years). The effect of the HF clinic intervention on treatment adherence (time to 90 days break in treatment) estimated by drug dispensing from pharmacies with either an Angiotensin Converting Enzyme-Inhibitor/Angiotensin II Receptor Blocker (ACE-I/ARB), a Beta-Blocker (BB) or an Aldosterone Receptor Antagonist (ARA) was then evaluated in Cox Proportional Hazard Models. Subgroup analyses were performed to identify high-risk patients with particular benefit.
Results: At randomization the two groups of patients were matched on baseline characteristics. Median Age was 69 years, 25% were females, LVEF was 30%, 90% were in NYHA class II-III and NT-proBNP was 801 pg/ml, 89% were treated with an ACE-I/ARB, 85% with a BB and 32% with an ARA. The HF clinic interven-