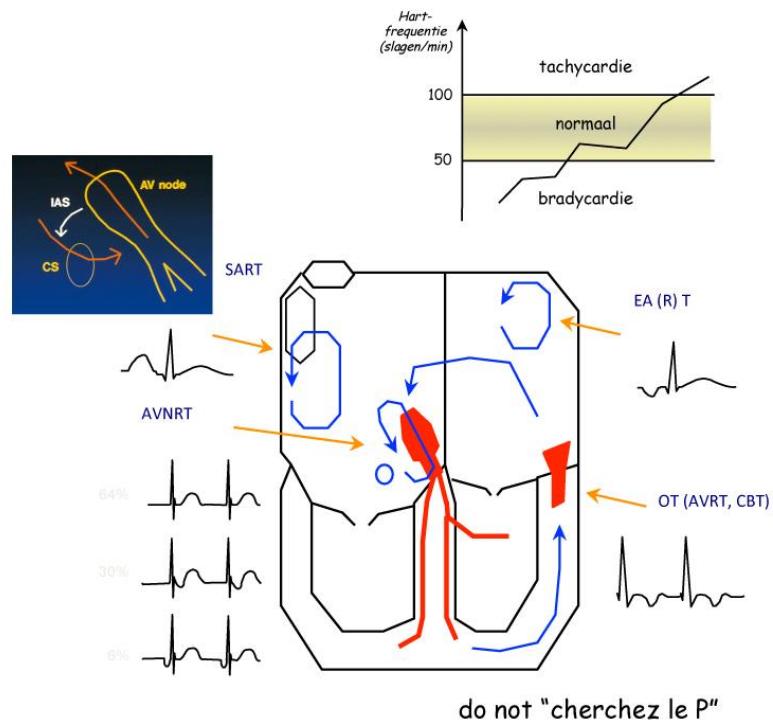
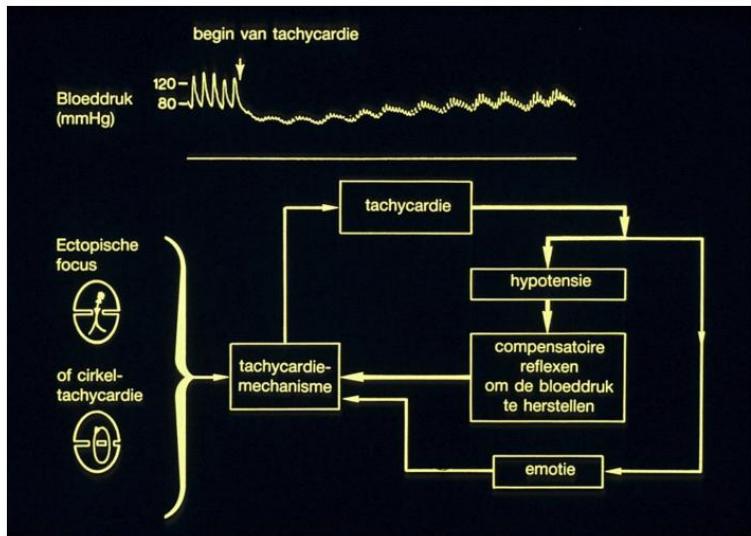
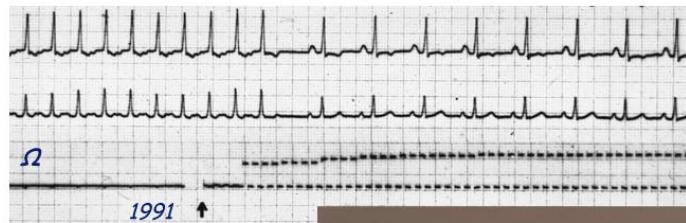


Supraventricular tachycardia: present in up to 1 % of the population



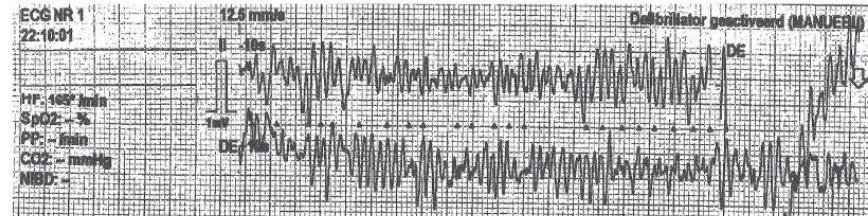
Principles of catheter ablation with RF



First catheter ablation in Belgium: 1991

4 AD STAD & REGIO

Toestand van studente kritiek na duik in Kralingse Plas

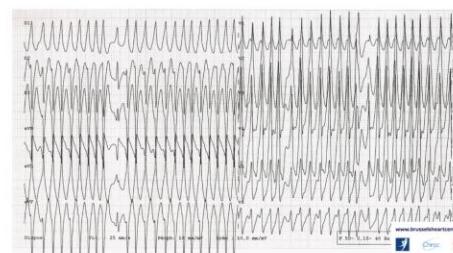


sometimes with serious consequences...

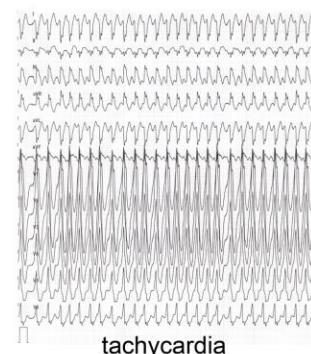
Manifestations of the WPW syndrome



asymptomatic

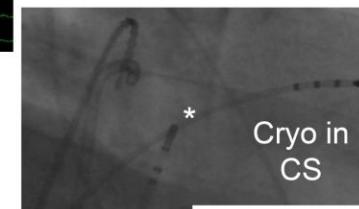
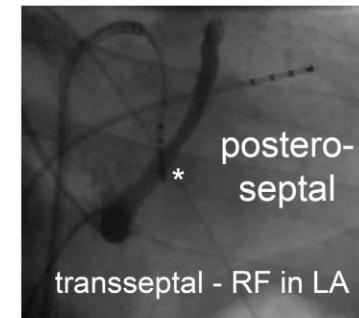
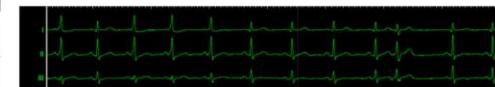
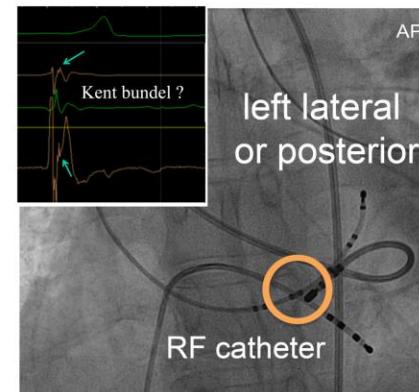
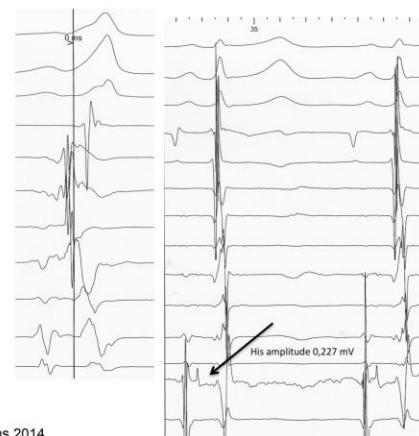
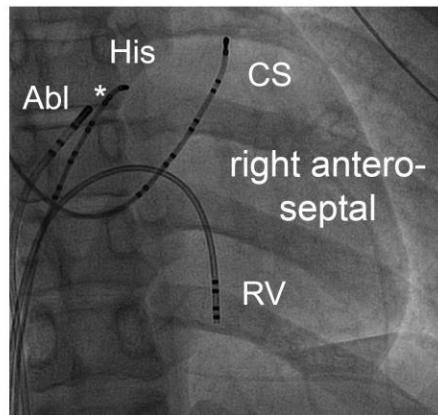


atrial fibrillation with collapse

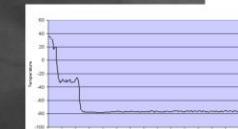


tachycardia

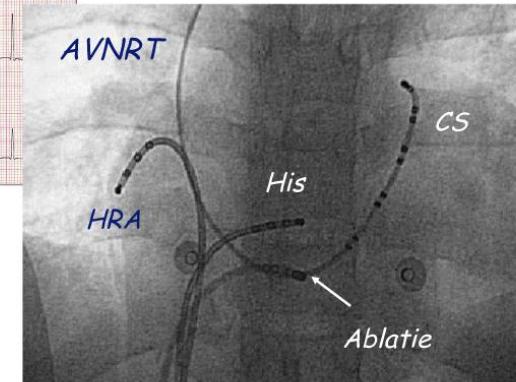
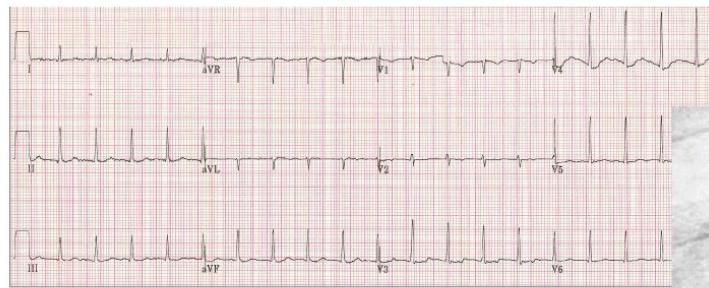
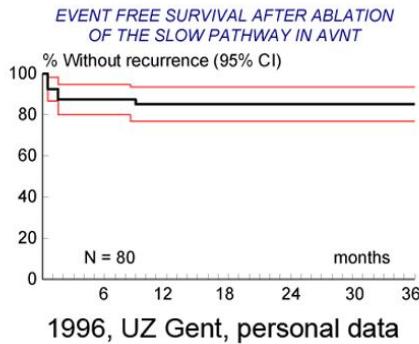
Individual approaches according the localisation are necessary



Catheter ablation of the WPW has a success rate of > 95 % and is a safe procedure for which no general anesthesia is required



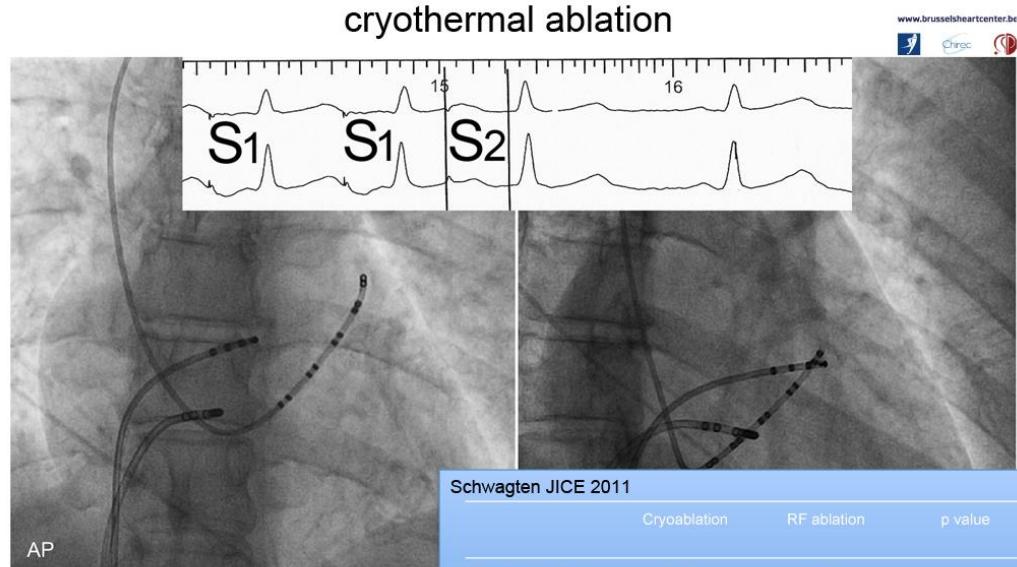
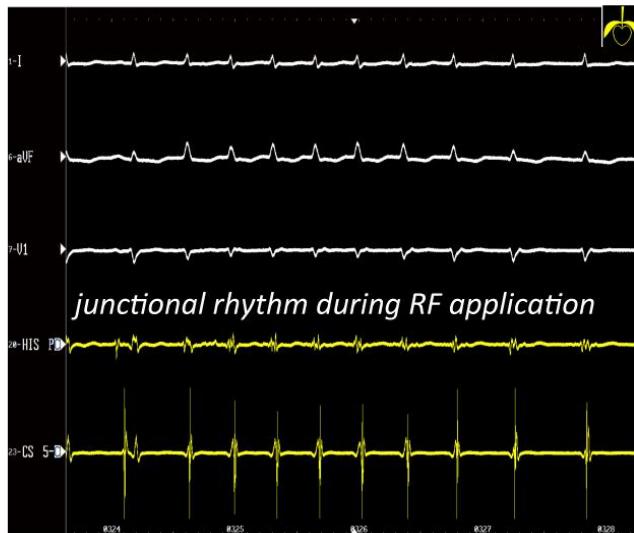
AV-nodal reentry tachycardia



frequent arrhythmia - 0,5 to 1%
of the population

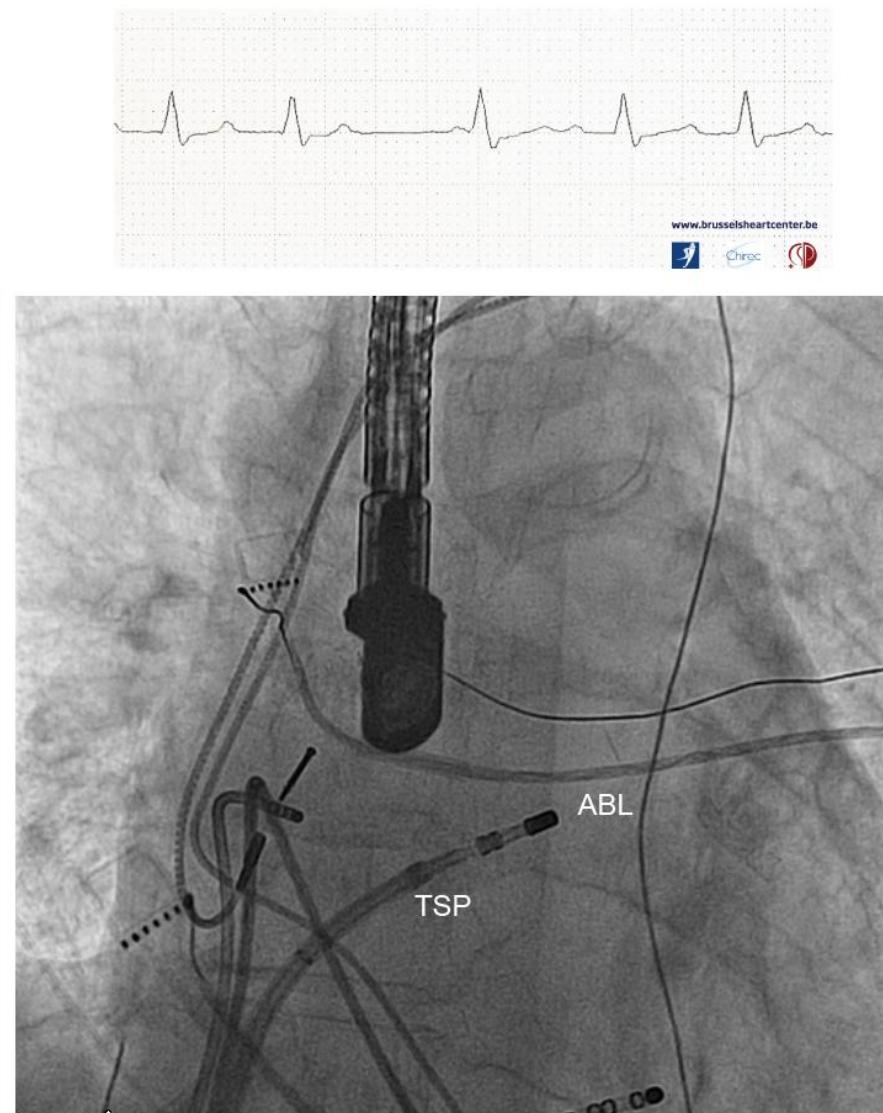
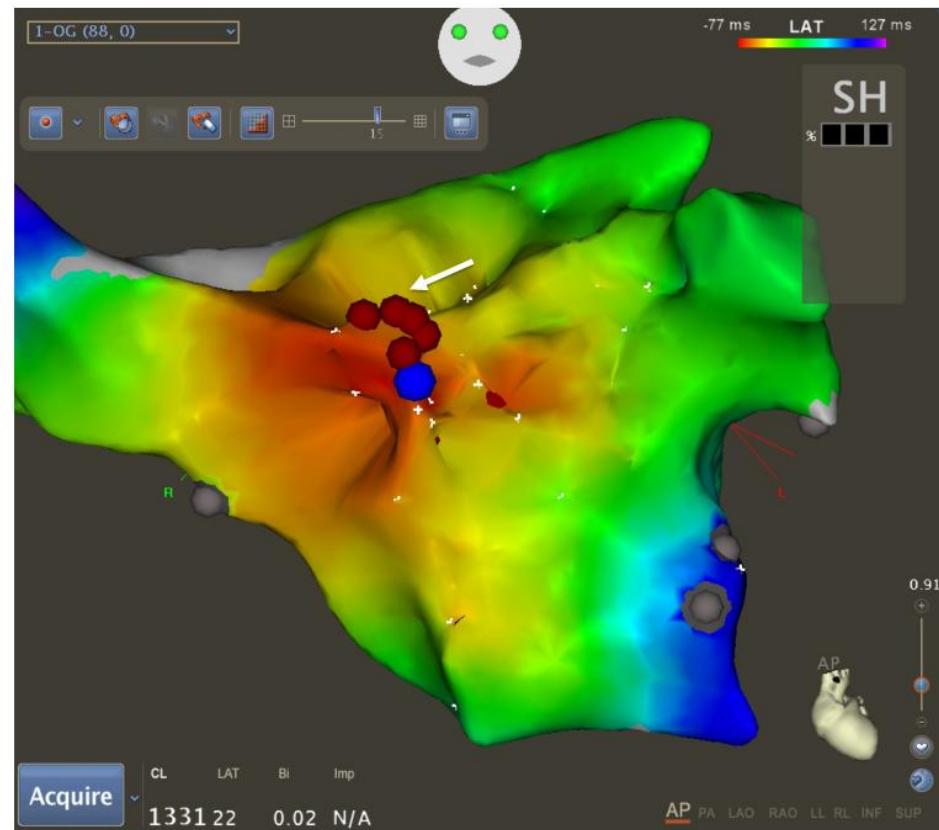
cryoablation is the safest approach
with no permanent damage on the AV node published

radiofrequency ablation



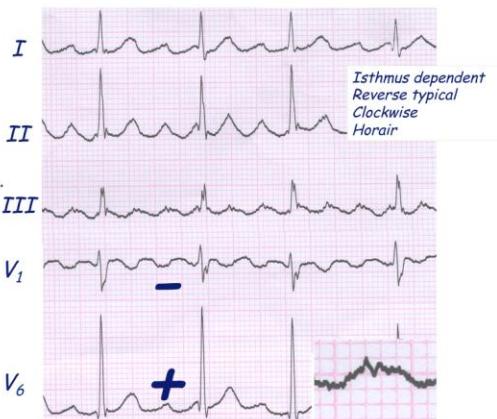
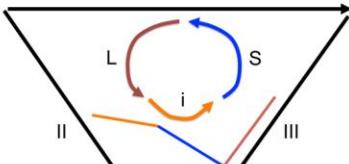
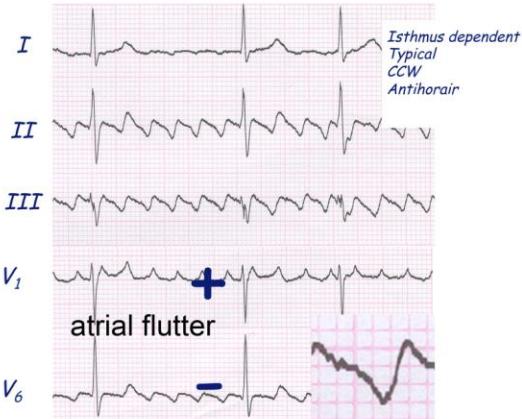
left sided atrial tachycardia

Left sided atrial tachycardia:
treated with irrigated RF ablation
(transseptal puncture, CARTO,
general anesthesia)

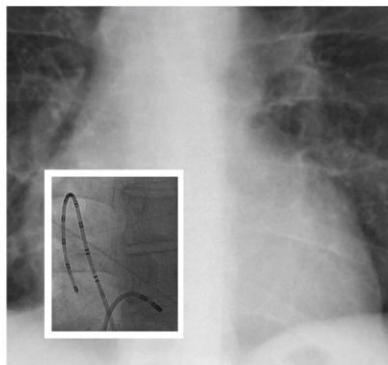
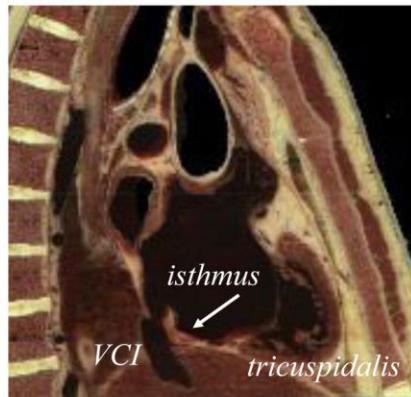
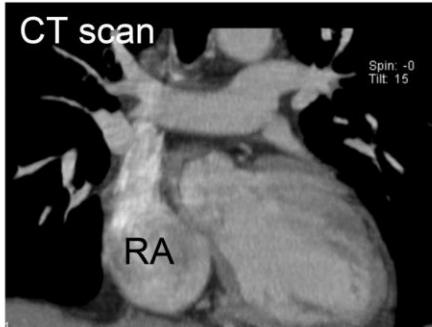


atrial flutter

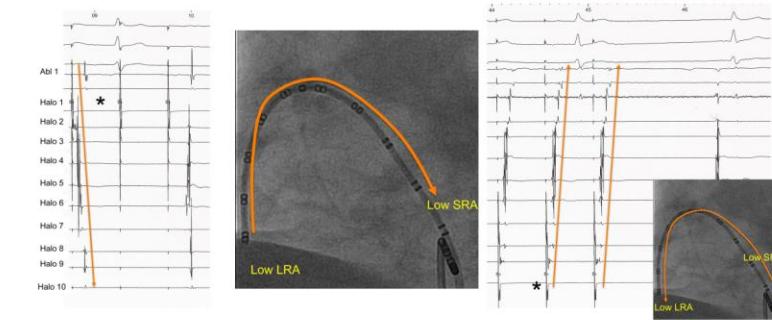
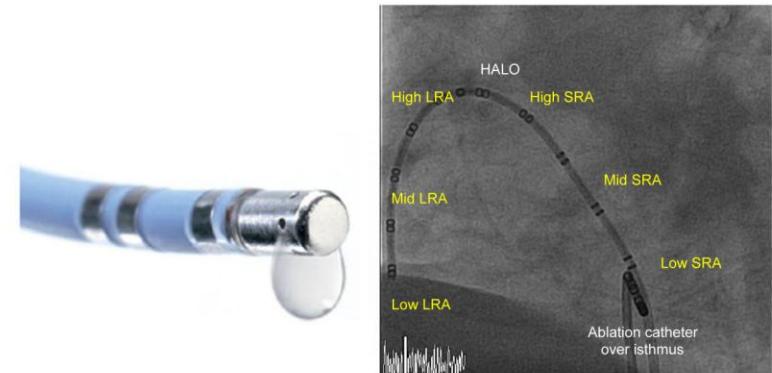
diagnosis



background

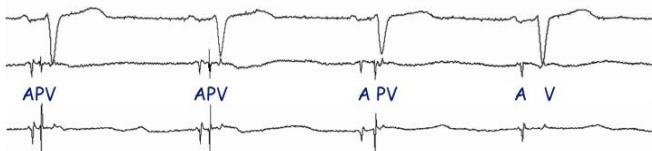
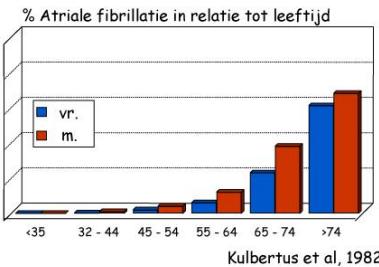
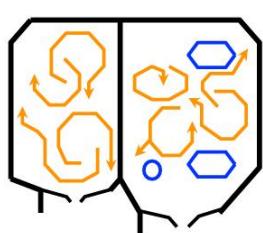


ablation

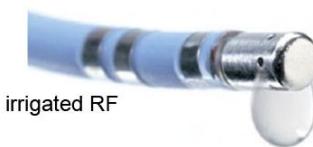
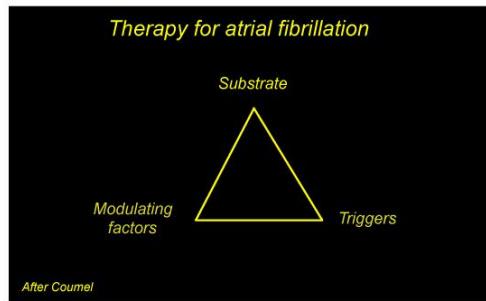
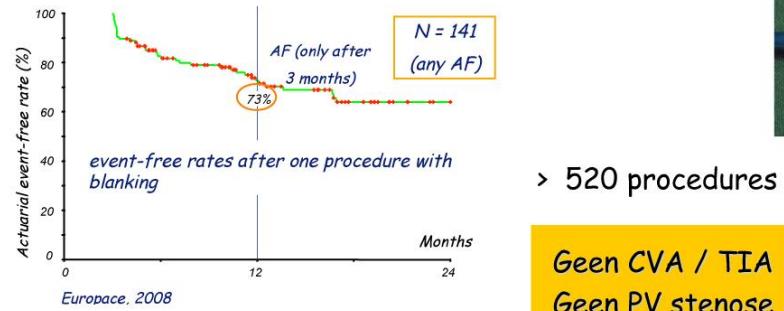


- isthmus dependent flutter implies right atrial disease
 - high success rates of ablation are reported
 - treat the triggers
 - prevent stroke

atrial fibrillation becomes present in 23 to 26% of the population > 40 years
it increases the risk for stroke with a factor 4



pulmonary vein potentials: the triggers



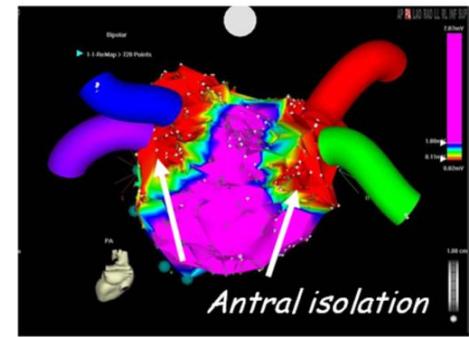
catheter types used for ablation



Therapy is aimed at preventing stroke (CHADS2VASC score) and to improve quality of life (Heart failure)

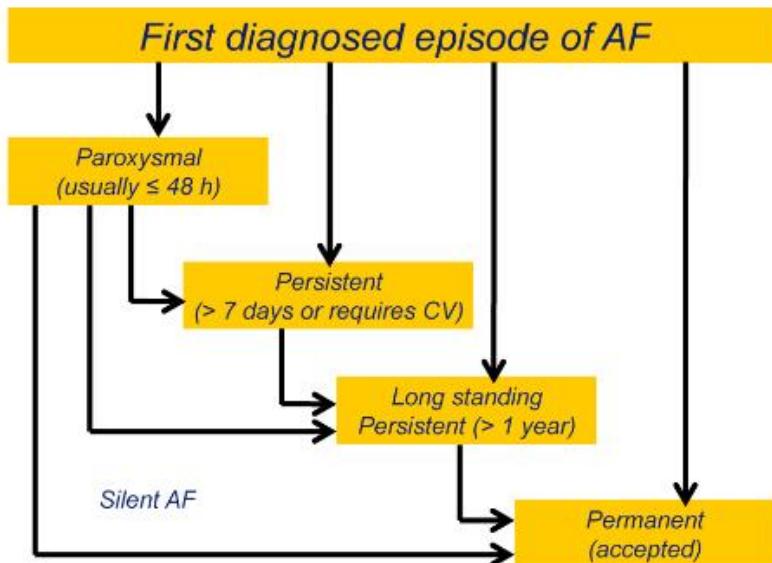


the pulmonary veins as seen by CT scan



Pulmonary vein isolation has become the cornerstone of the therapy for atrial fibrillation

AF : indications for anticoagulation

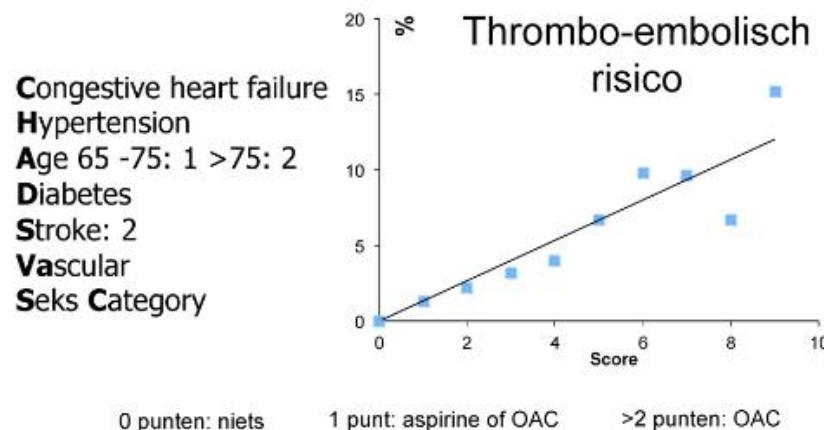


The stroke risk does not depend on AF type; indicated for all > 48 h

Does depend on risk for emboli / stroke
Cardioversion increases the risk

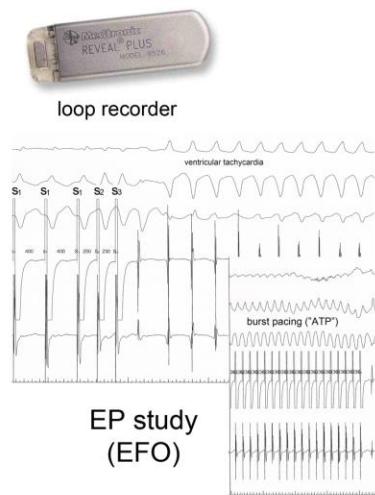
The risk is calculated with a score
(CHADS2VASC)

NOACs perform as good as AVK, with less risk for bleeding

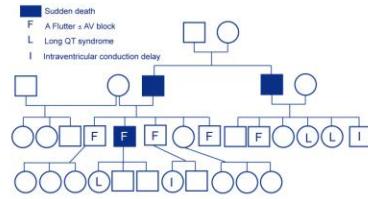
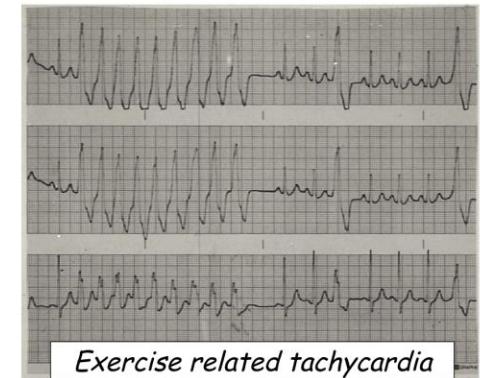
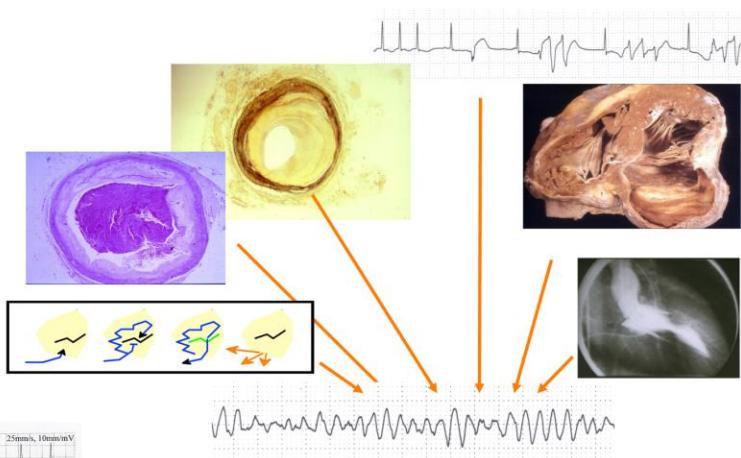


Sudden Cardiac Death

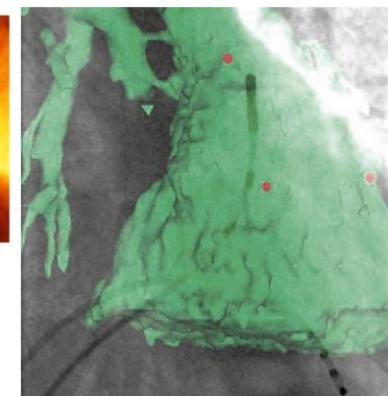
Above 35 years :
ischemic heart disease
Below 35 years :
a variety of problems



EP study
(EFO)



genetic testing



imaging: angio, CT scan, MRI

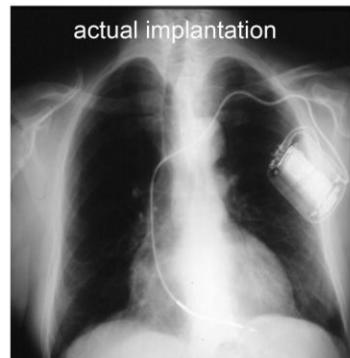
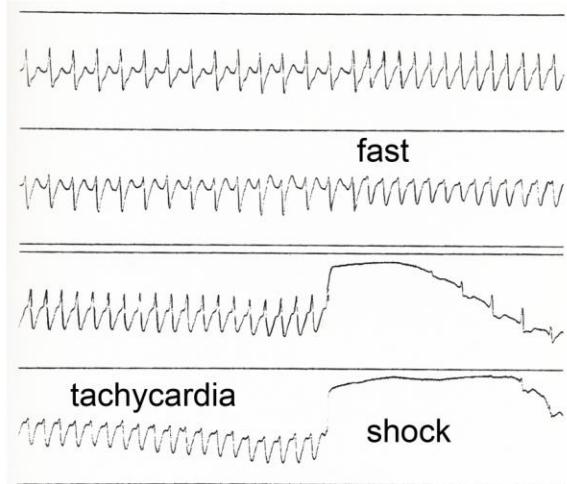
Implantable cardioverter defibrillators



first ICD



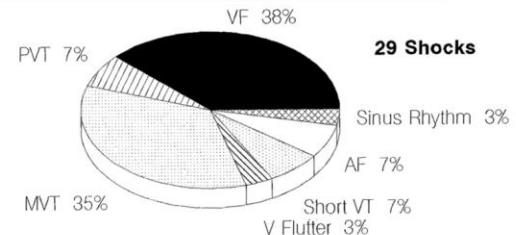
Defibrillators became smaller, easier to implant, can be programmed, look now like pacemakers, can provide pacing and interrupt tachycardia by pacing; they are very sophisticated - e.g. remote follow-up is possible



remote monitoring via the GSM network

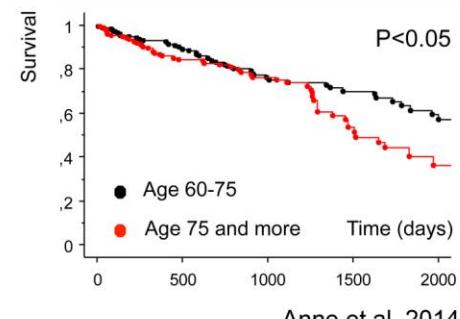
The first ICD's in this country were implanted by a team in Ghent, under my overview, which resulted in acceptance and reimbursement of defibrillator therapy in Belgium

SHOCKS DURING AND AFTER IMPLANTATION OF THE AICD (5 PATIENTS)



Jordaens et al 1988

Survival compared in ICD-patients aged 60-75 and patients > 75years



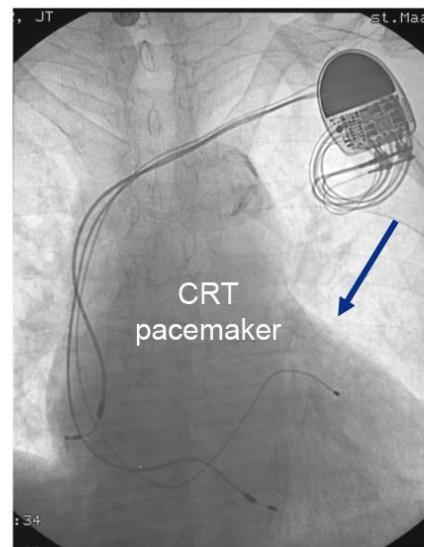
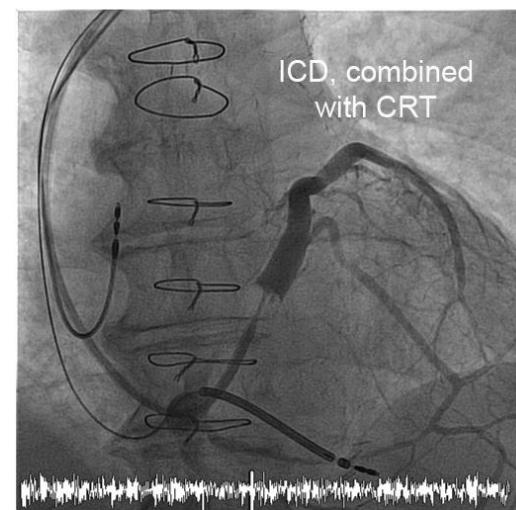
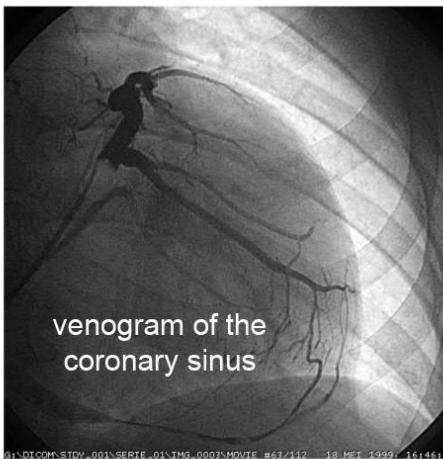
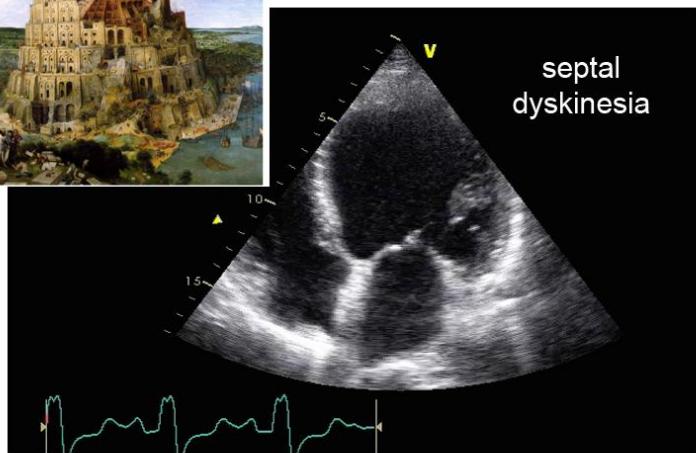
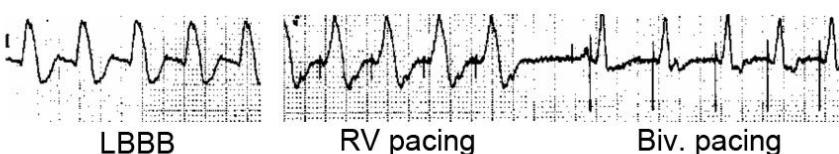
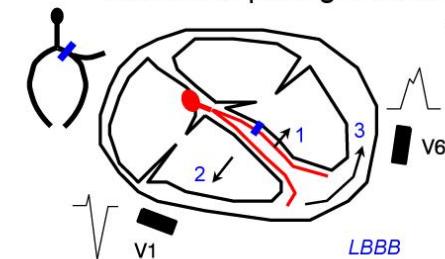
Anne et al, 2014

- + In 2014, ICD's are reliable, easy to implant, and cost effective
- + careful programming is necessary (new studies) to avoid unwanted interventions

CRT - resynchronisation - biventricular pacing

When heart failure is present, right ventricular pacing and left bundle branch block aggravate this condition

Additional pacing in the left ventricle can improve symptoms and increase the LV ejection fraction. This is done by adding a pacemaker lead in a side branch of the coronary sinus.

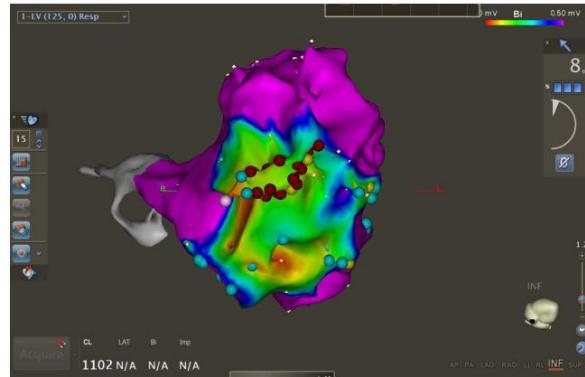
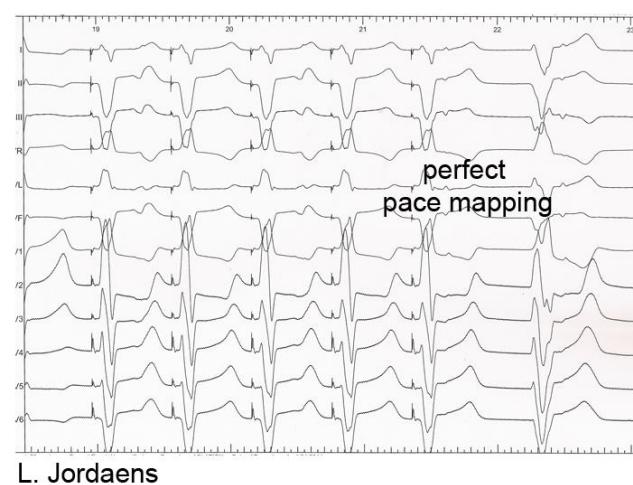
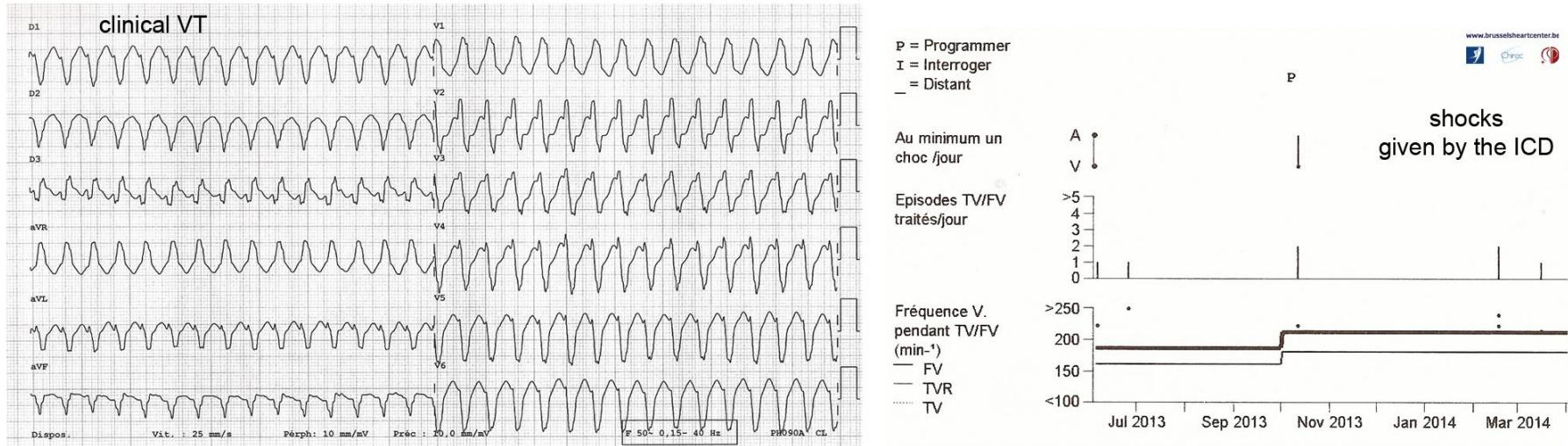


left ventricular lead in the coronary sinus

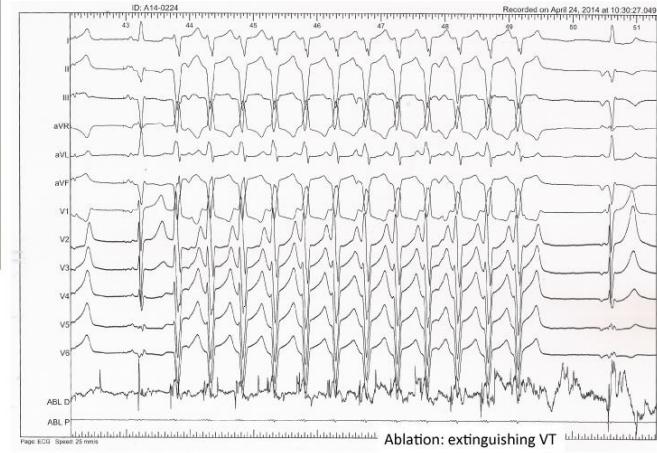


Indications:
NYHA class II and III,
good heart failure therapy and LBBB

Ischemic VT in a patient with an ICD



ischemic VT is feasible:
general anesthesia, CARTO
and double set-up (TSP
and retrograde)

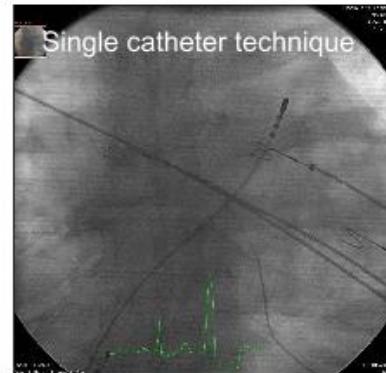
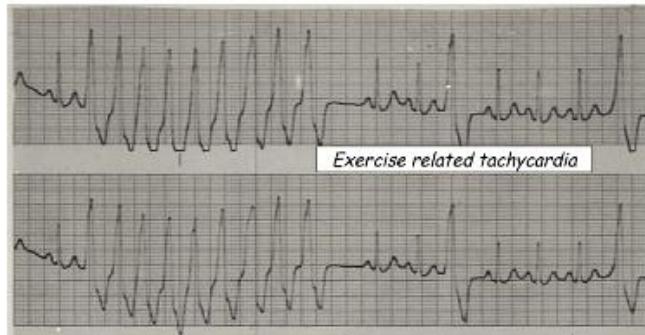


Right ventricular outflow tract (RVOT) ablation - TV de la chambre de chasse - VT uit het uitstroomgebied

Holter



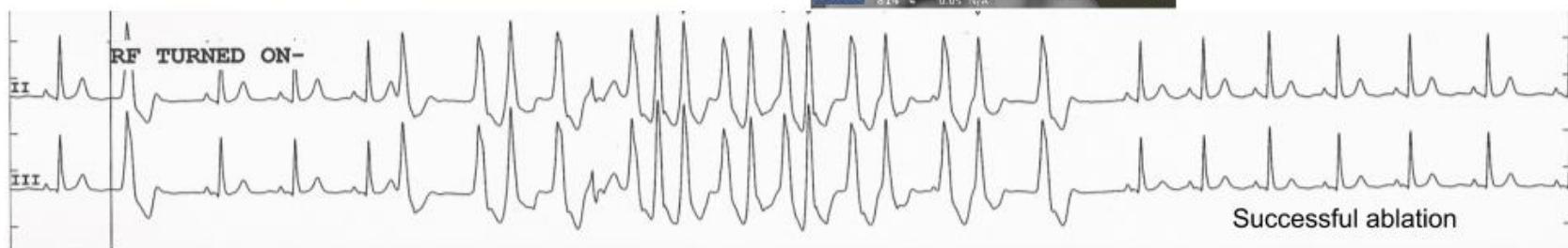
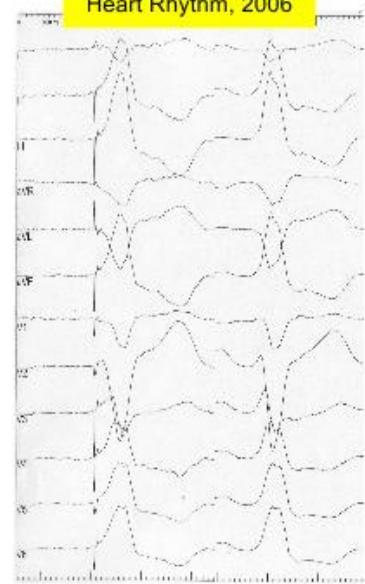
Very prevalent arrhythmia: embryonic pacemaker
80% RV, 20% LV or aortic
Historically, modest results of drugs / ablation
Finally, better pacemapping available
Actual results of ablation > 85% (JICE 2012)
Indication: asymptomatic patient !
frequent ES (> 6% on Holter)
presence of HF
(other disease ?)



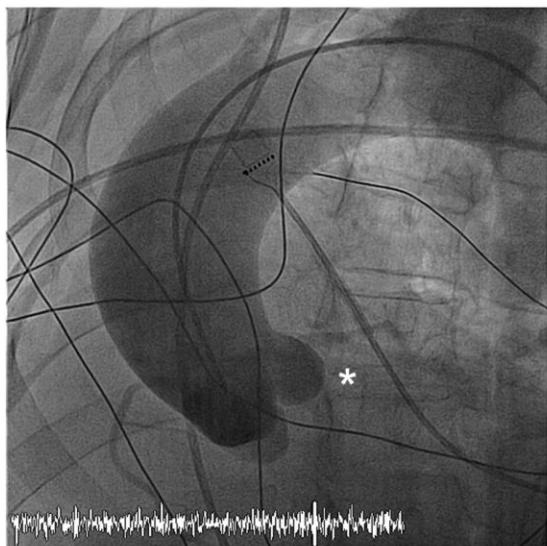
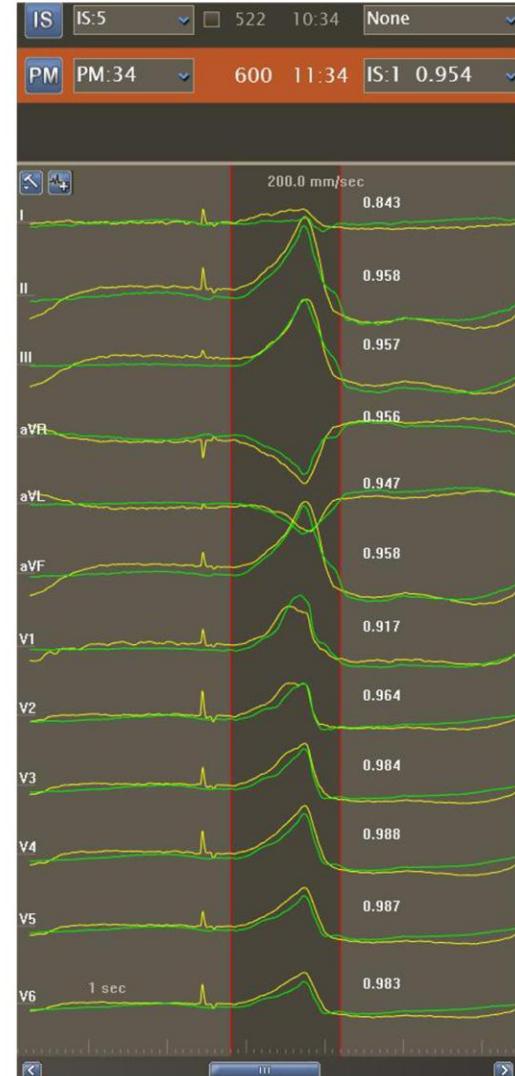
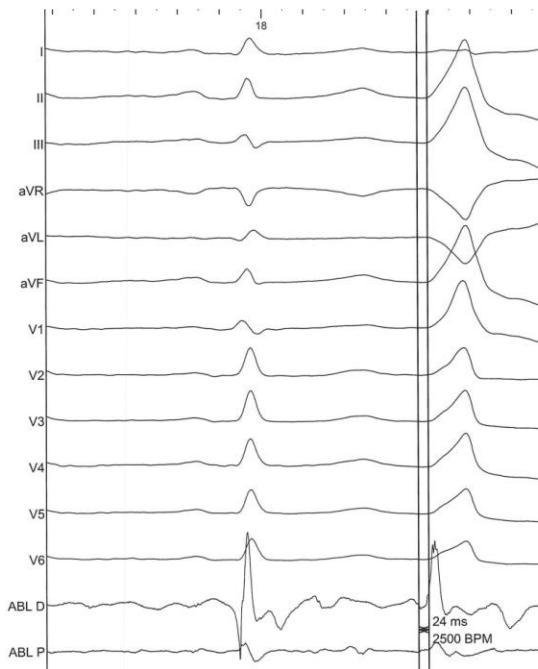
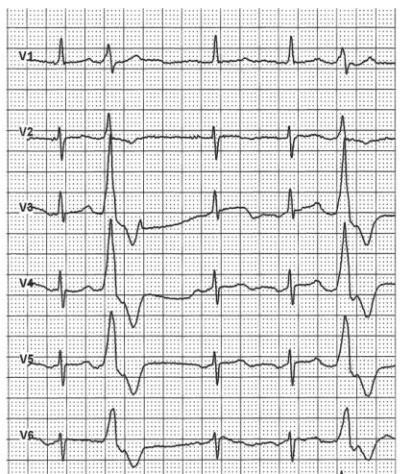
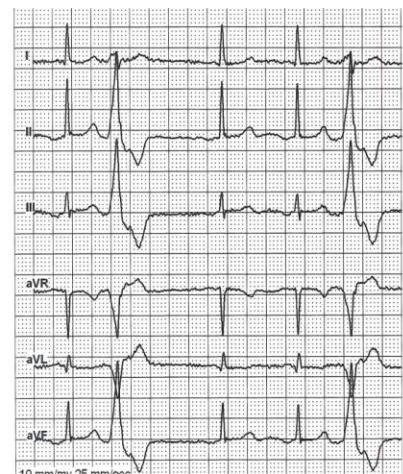
Thornton & Jordaens
Heart Rhythm, 2006



Pacemapping

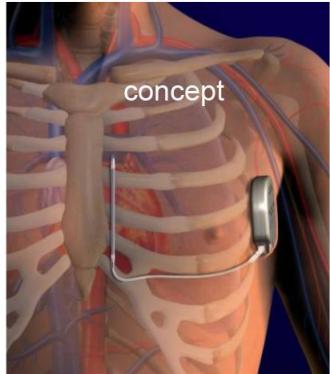


Outflow tract ventricular tachycardia

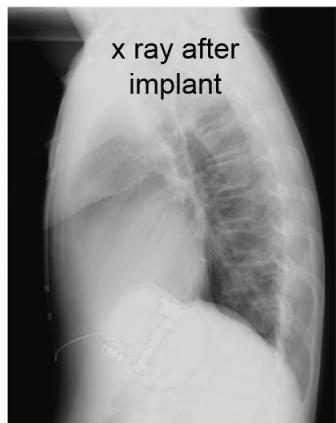
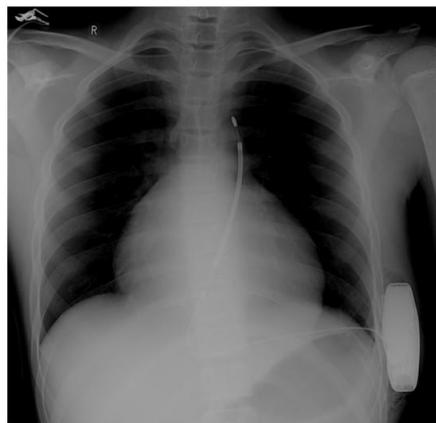


Catheter ablation of
outflow tract
arrhythmias:
guided by local
signals and
pace-mapping

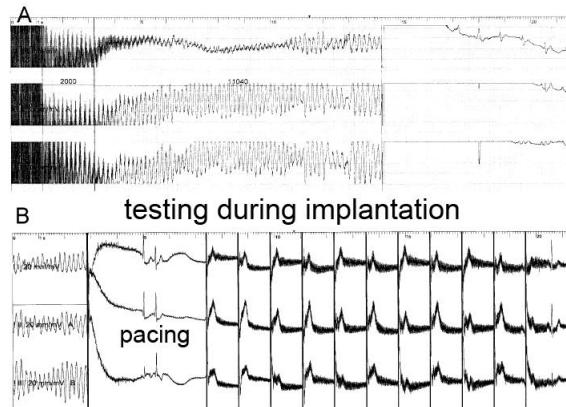
the subcutaneous defibrillator (SICD)



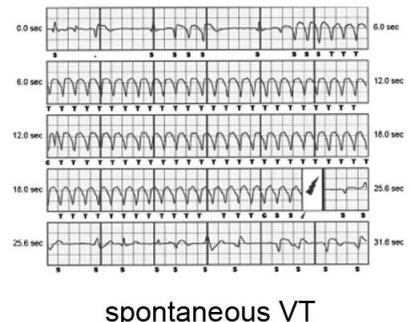
1st implant in Europe
(2008)



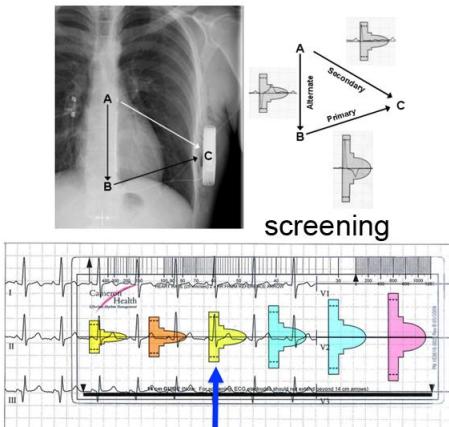
x ray after
implant



B testing during implantation



spontaneous VT



The SICD performs as anticipated and is a good solution if:

- no pacing nor ATP is necessary
- if no CRT is necessary
- if the device is entirely prophylactic
- if problems exist with old leads or vascular access

- when the screening succeeds

On the long run 30-to 40 % of ICD's can be subcutaneous