



Medizinische Universität Graz

# DAS NOTFALLS-EKG: PITFALLS AUS DER PRAXIS

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Universitätsklinik für Innere Medizin

Abteilung für Kardiologie

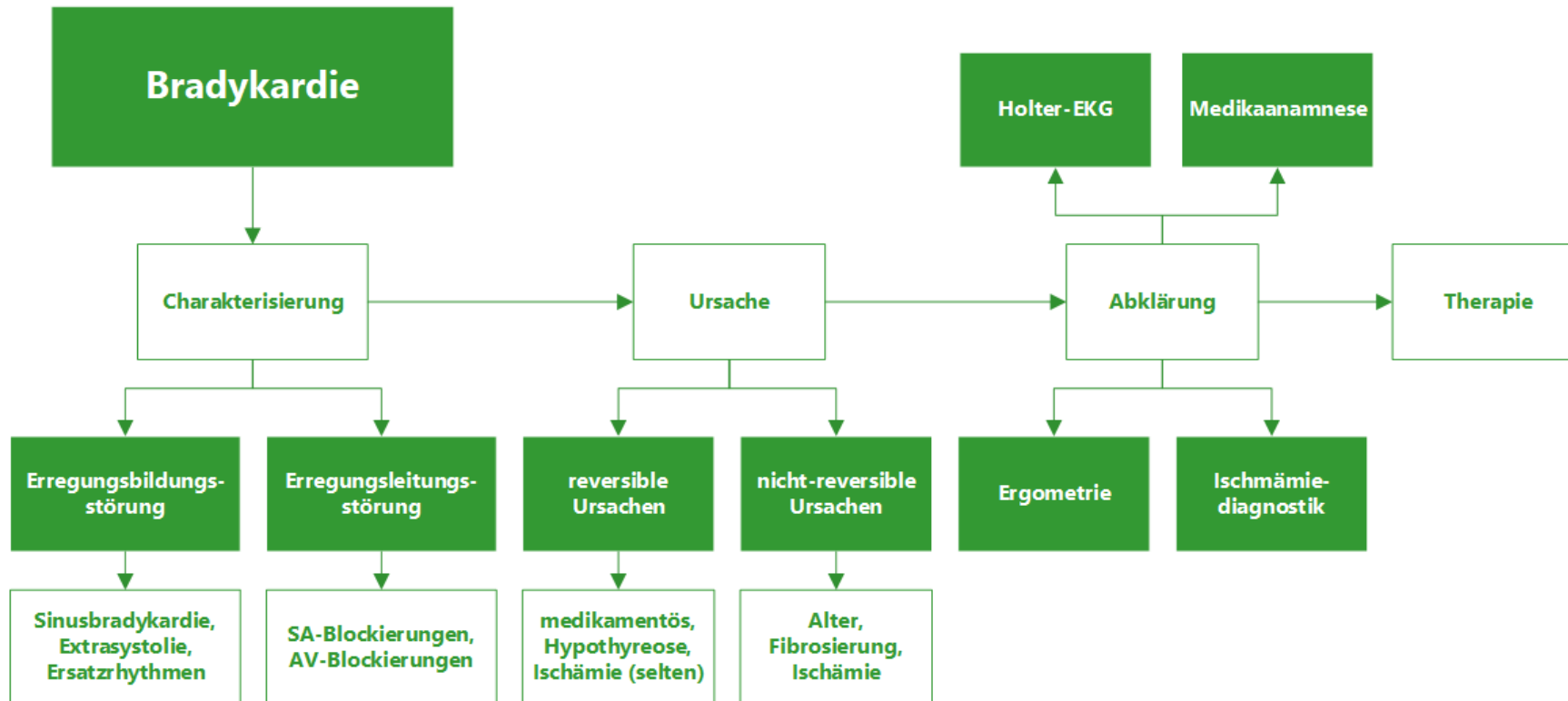
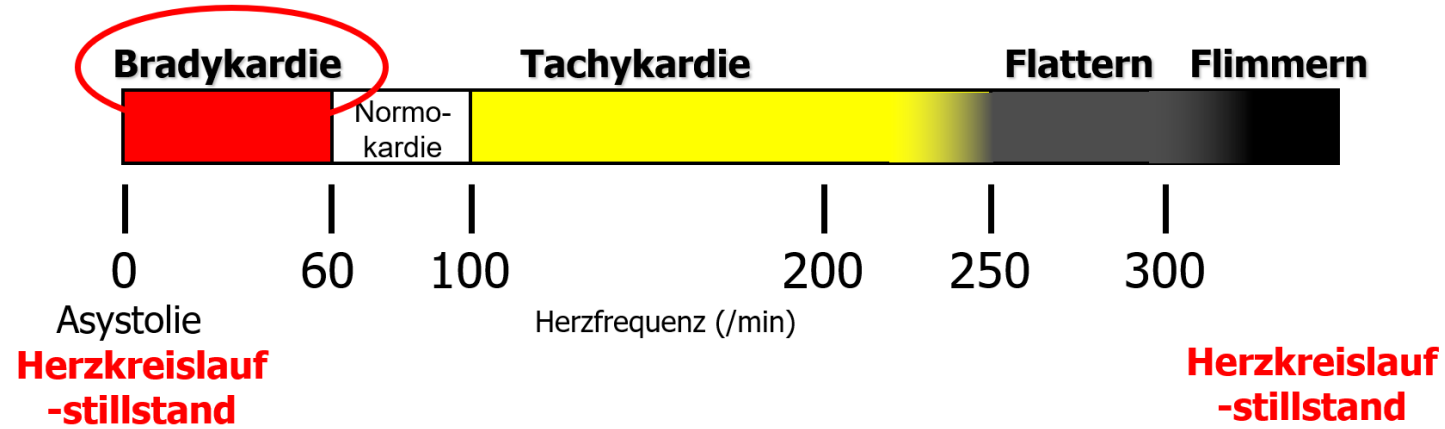


# Outline

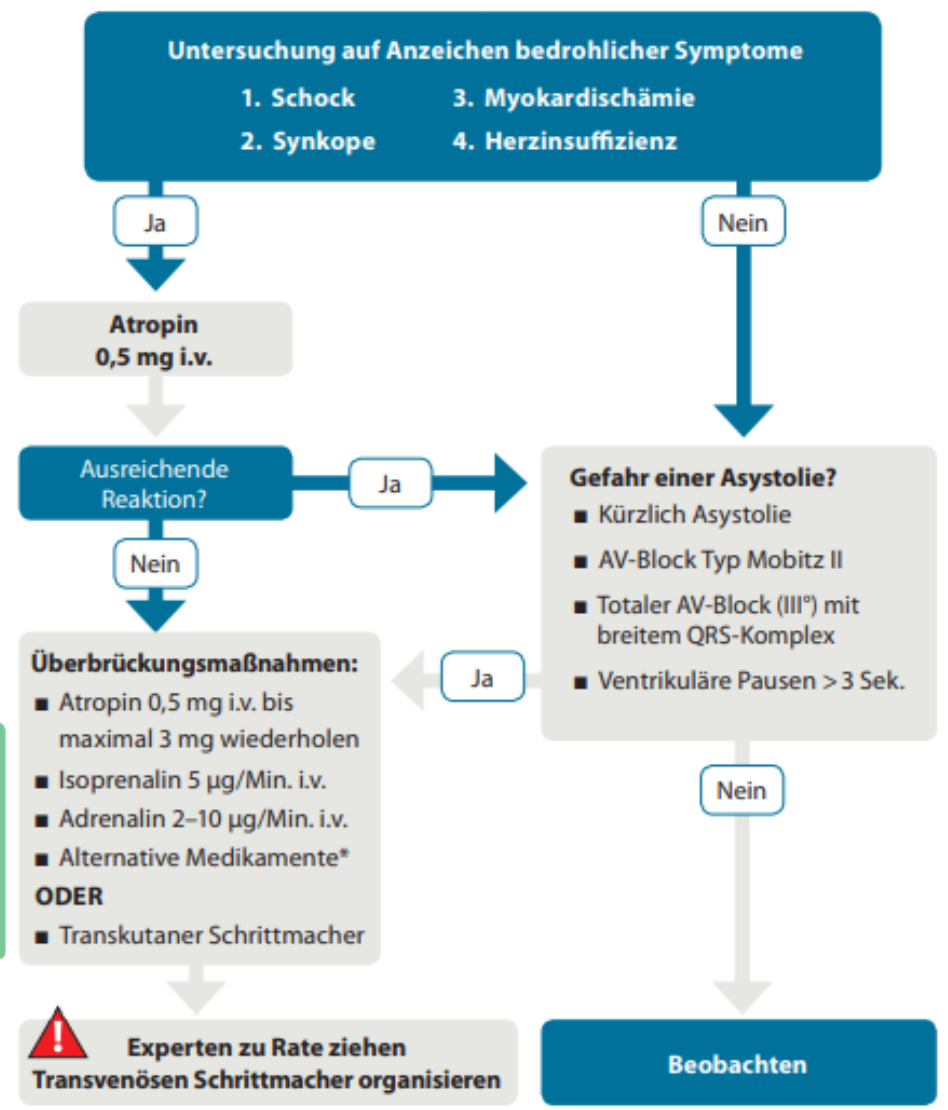
- ▶ **Bradykardien**
- ▶ Tachykardien



# Bradykardien



# Bradykardie Algorithmus ERC 2021



- \* Alternativen sind:
- Theophyllin
  - Dopamin
  - Glucagon (bei Über-dosierung mit  $\beta$ -Blockern oder Kalzium-Kanal-Blockern)
  - Glykopyrronium kann anstatt Atropin verwendet werden

## Isuprel-Perfusor:

- ▶ 5A (=0,2mg\*5=1mg) ad 50ml NaCl 0,9% (=0,02mg/ml = 20µg/ml)
- ▶ Dosierung: 15ml/h

## Supra-Blitz: (10µg/ml)



# Outline

- ▶ Bradykardien
- ▶ **Tachykardien**

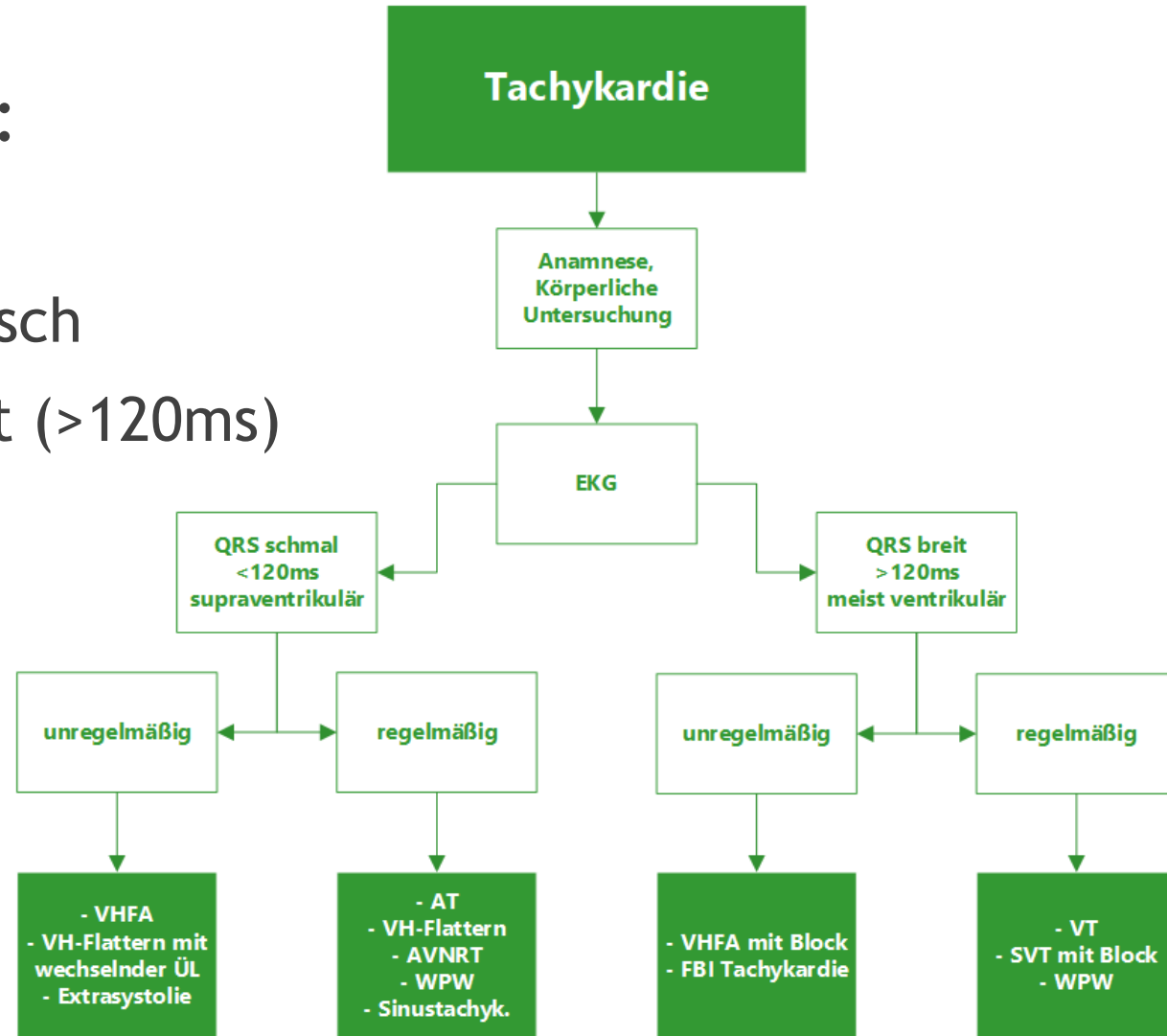


# Erstbeurteilung

## ▶ EKG (12-Ableitungen!):

- ▶ Frequenz?
- ▶ rhythmisch - arrhythmisch
- ▶ schmal (<120ms) - breit (>120ms)

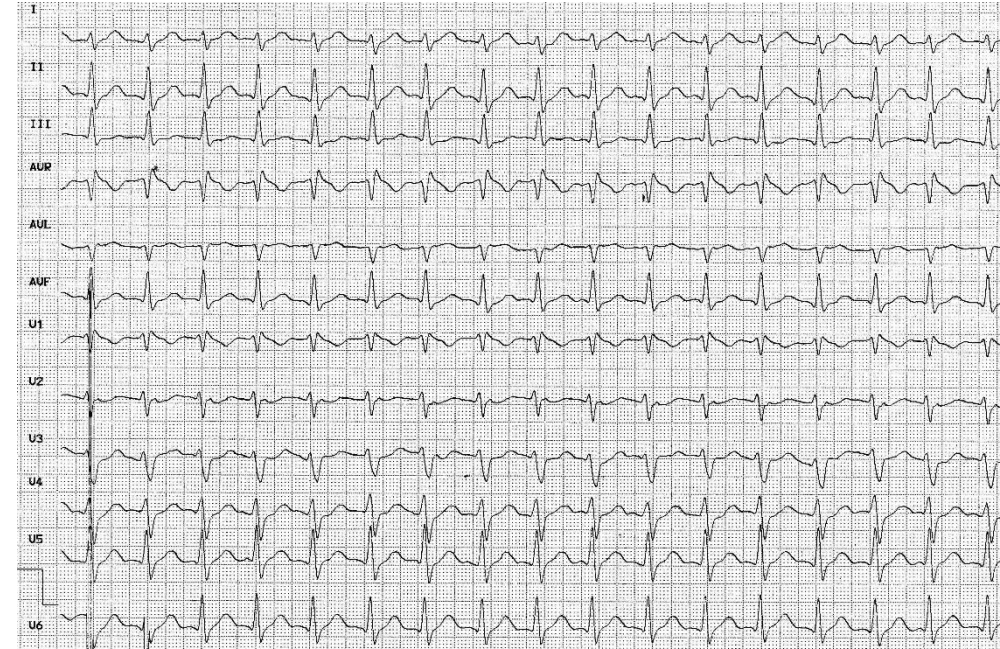
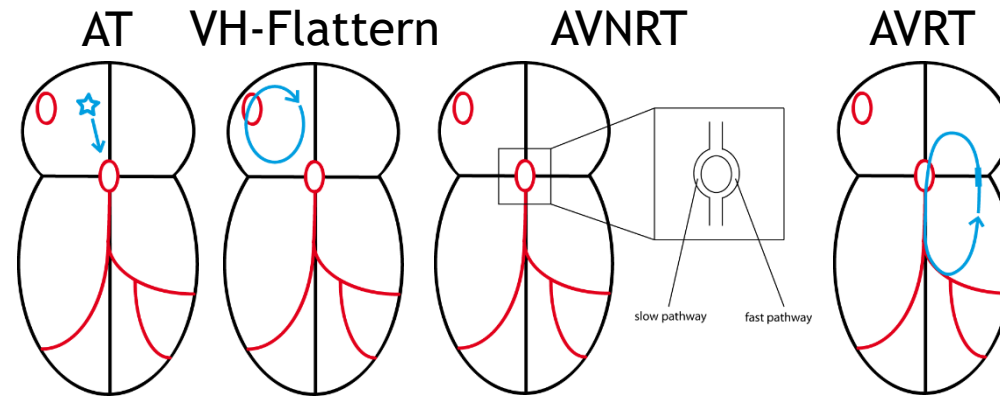
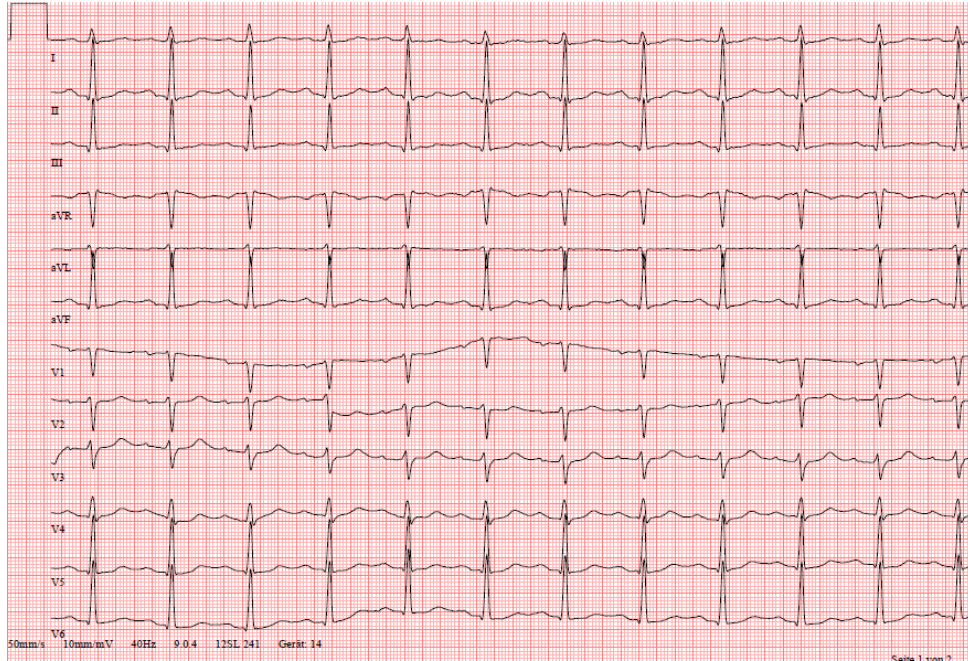
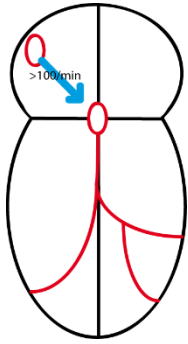
## ▶ Symptomatik?



# Schmalkomplex- tachykardien

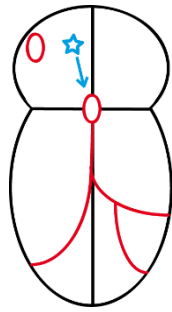


# Sinustachykardie

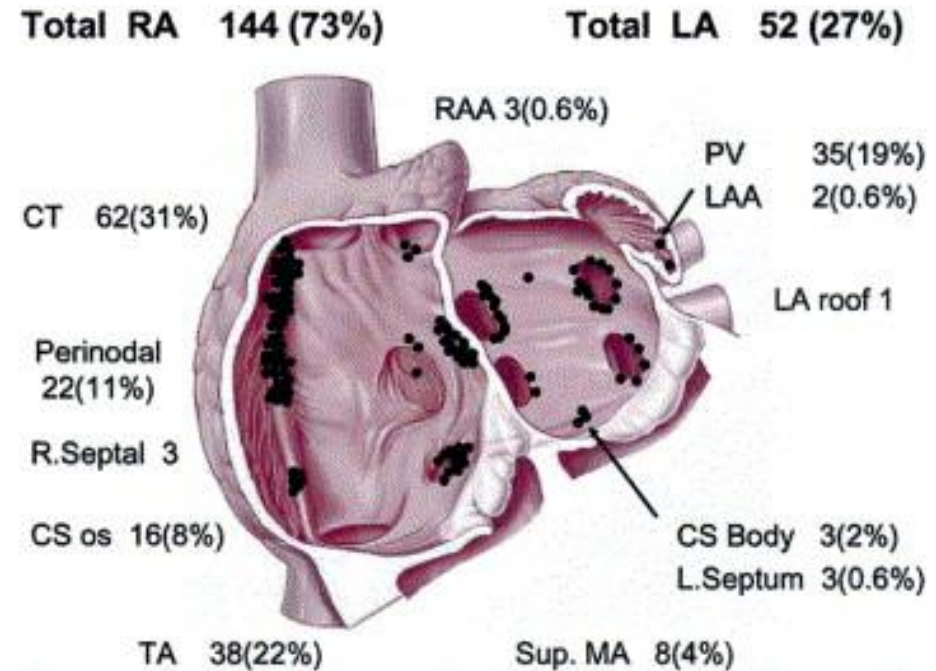
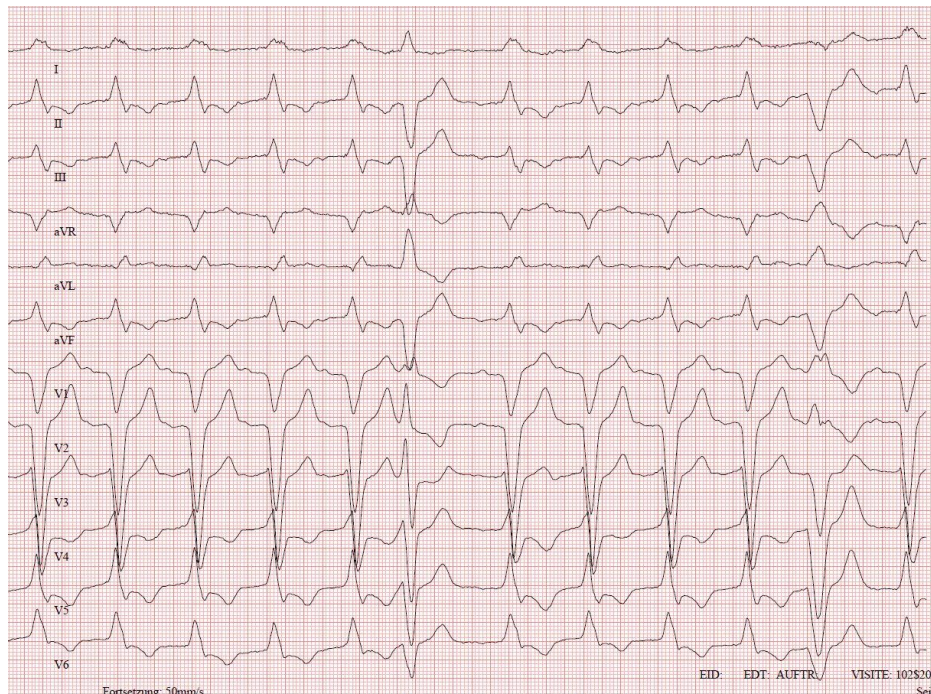




# Atriale Tachykardie

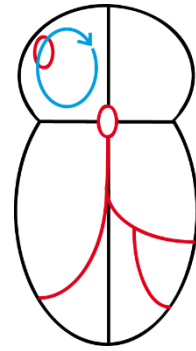


- ▶ Symptomatik: warming up, Start/Stop
- ▶ P-Welle vorhanden
- ▶ teilweise Adenosin-sensitiv



Kistler et al. JACC. 2006;48:1010-1017.

# Vorhofflattern

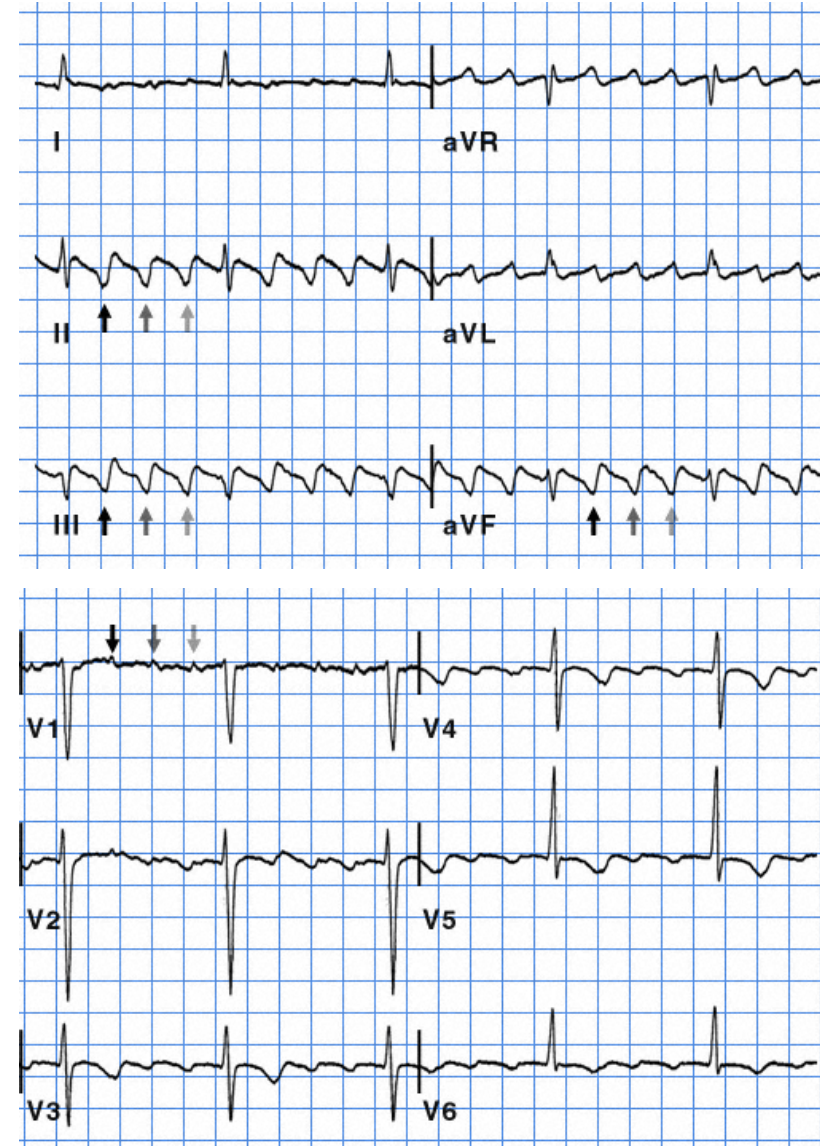


## ▶ Arten:

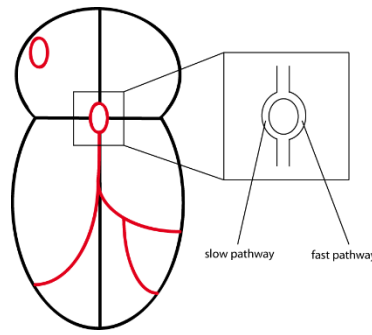
- ▶ typisches isthmusabhängiges rechtsatriales Flattern
- ▶ (atypisches rechtsatriales Flattern)
- ▶ (atypisches linksatriales Flattern)

## ▶ EKG

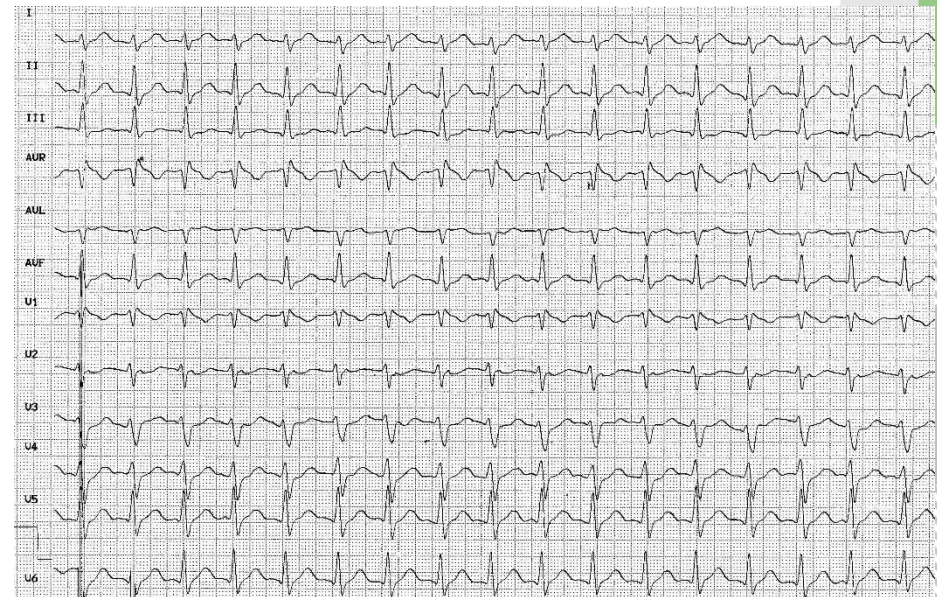
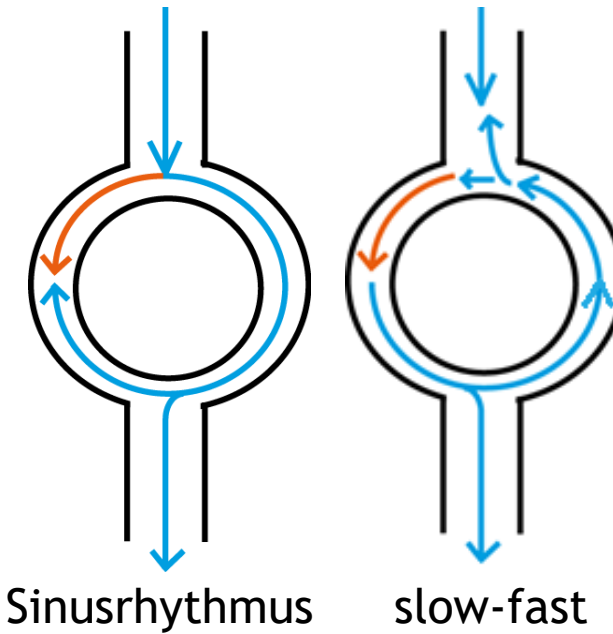
- ▶ sägezahnförmige Flatterwellen
- ▶ Vorhoffrequenz 240-330/min
- ▶ physiologischer AV-Block (meist 2:1 oder 3:1)



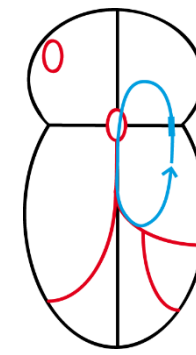
# AVNRT



- ▶ Mikroreentry infolge funkt. Längsdissoziation des AV-Knotens in
  - ▶ langsam leitende Bahn
  - ▶ schnell leitende Bahn
- ▶ Symptomatik:
  - ▶ on/off-Phänomen
  - ▶ „frog sign“
- ▶ p-Welle:
  - ▶ verborgen im QRS: 56%
  - ▶ Pseudo-S (neg in II, III, aVF, R' in V1): 36%
  - ▶ nach QRS: 8%

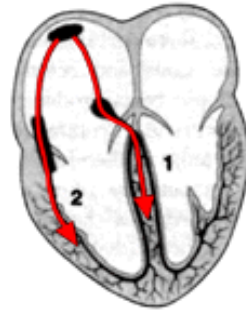


# AVRT (akzessorische Leitungsbahn)



**A**

Sinus rhythm



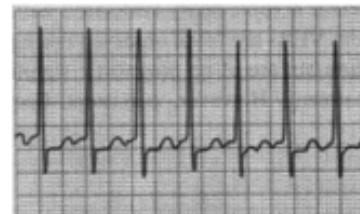
**B**

Antidromic tachycardia



**C**

Orthodromic tachycardia



**D**

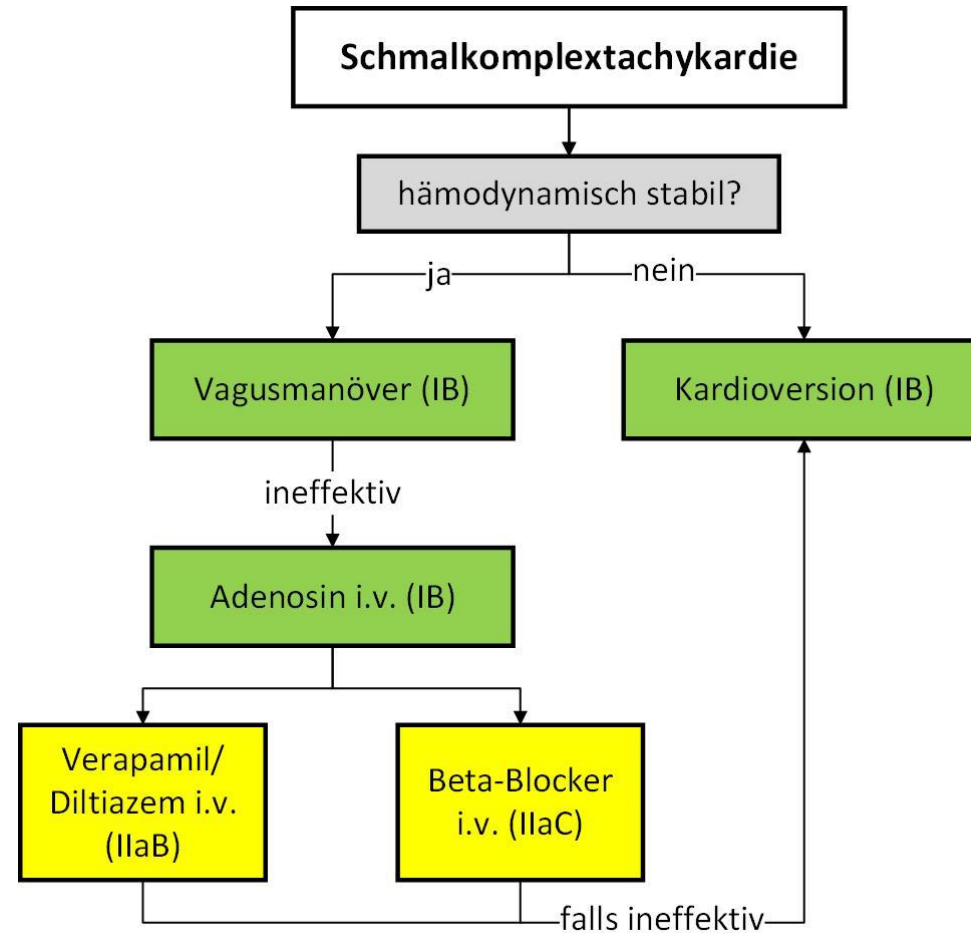
Atrial fibrillation



# SVT-Akuttherapie



# SVT Akuttherapie

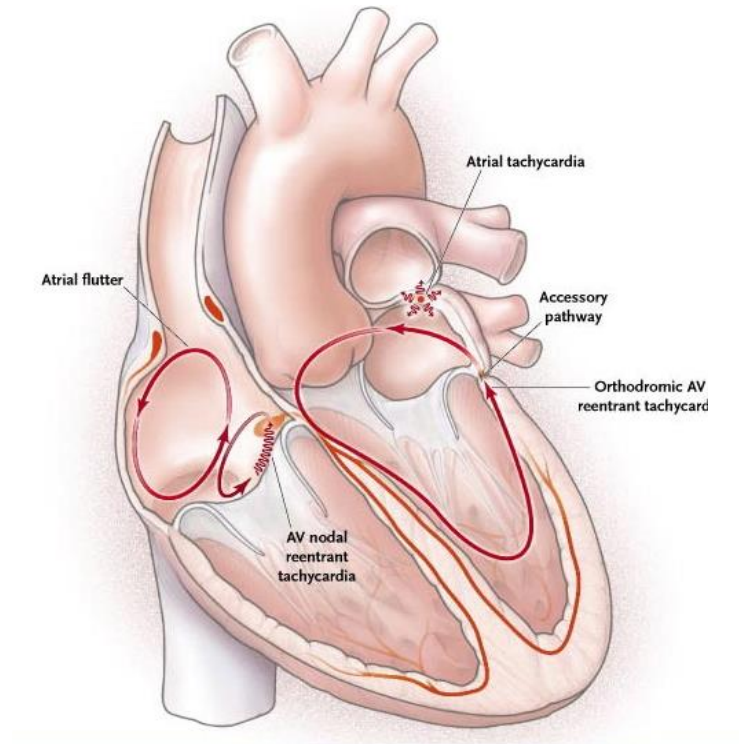


# SVT Akuttherapie: Adenosingabe

- ▶ Dosisabhängige Verlängerung der AV-Leitung
- ▶ Dosierung: 6 - 12 - 18mg
- ▶ Wirkung nach spätestens 20-30sec
- ▶ Repetitive Gabe nach 1 Minute
- ▶ Ggf. höhere Dosen nötig, wenn Dipyridamol (Asasantin®), Theophyllin oder koffeinhaltige Getränke konsumiert wurden

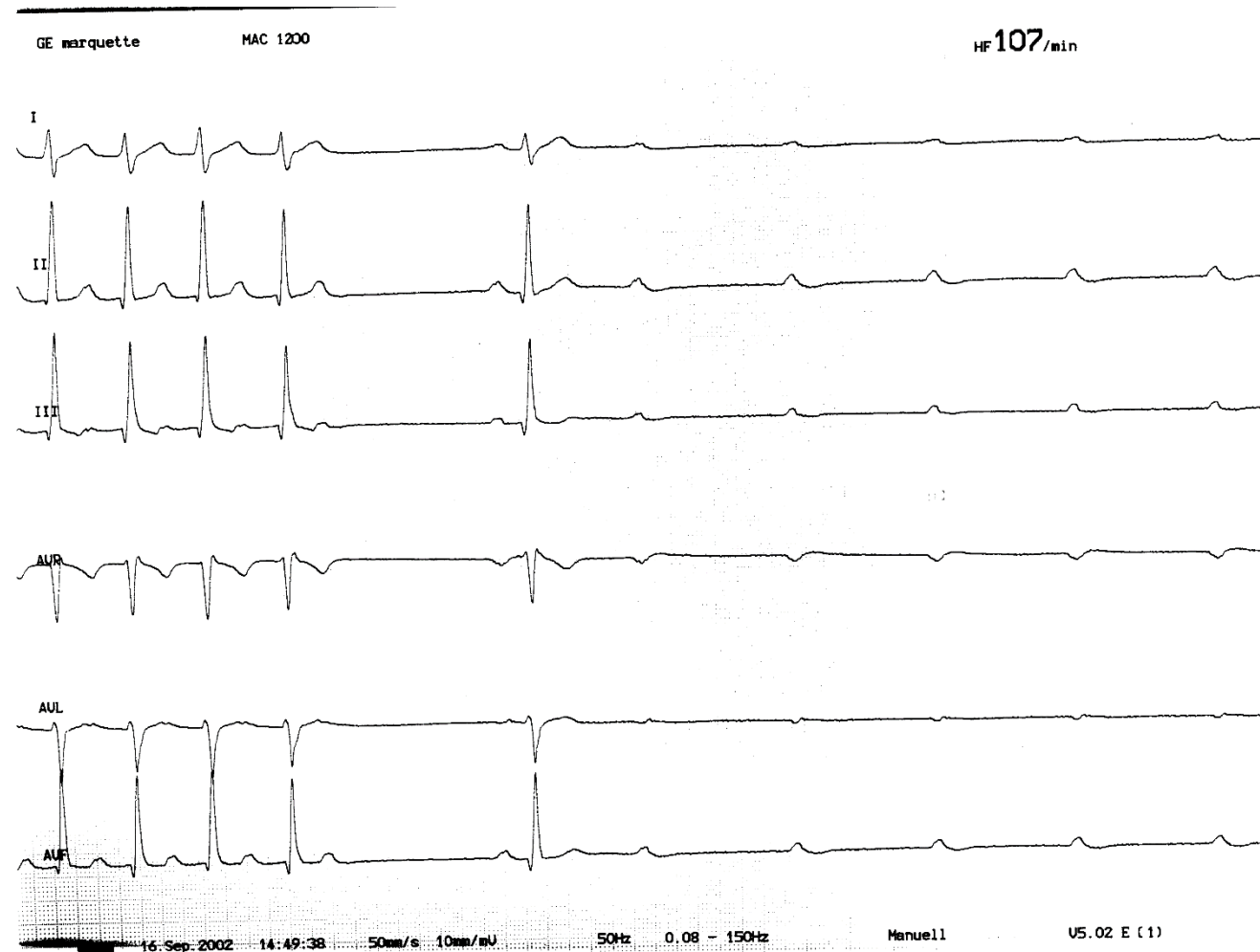


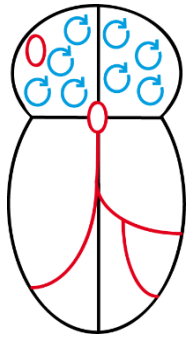
# SVT Akuttherapie: Adenosingabe



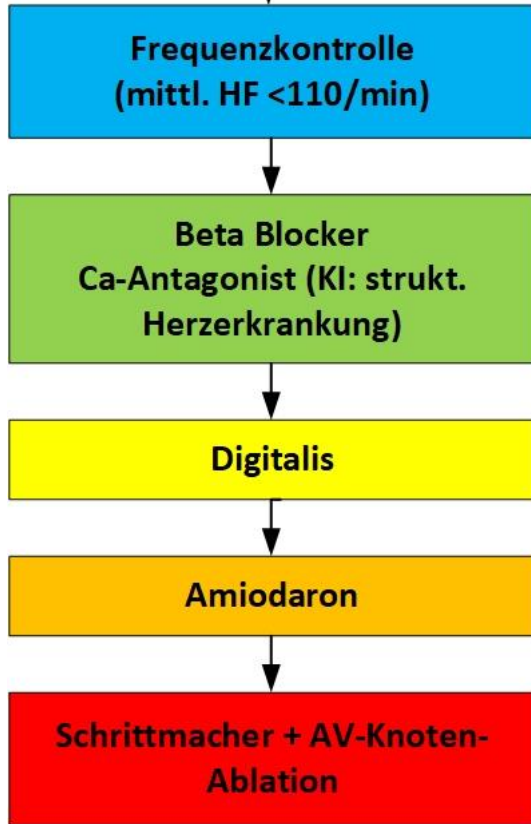


# SVT Akuttherapie: Adenosingabe



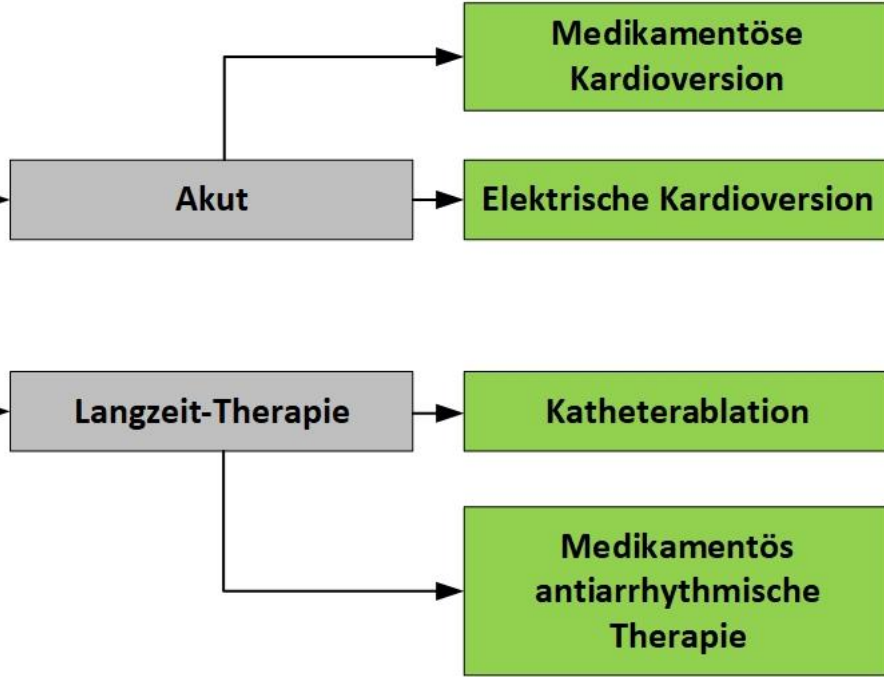
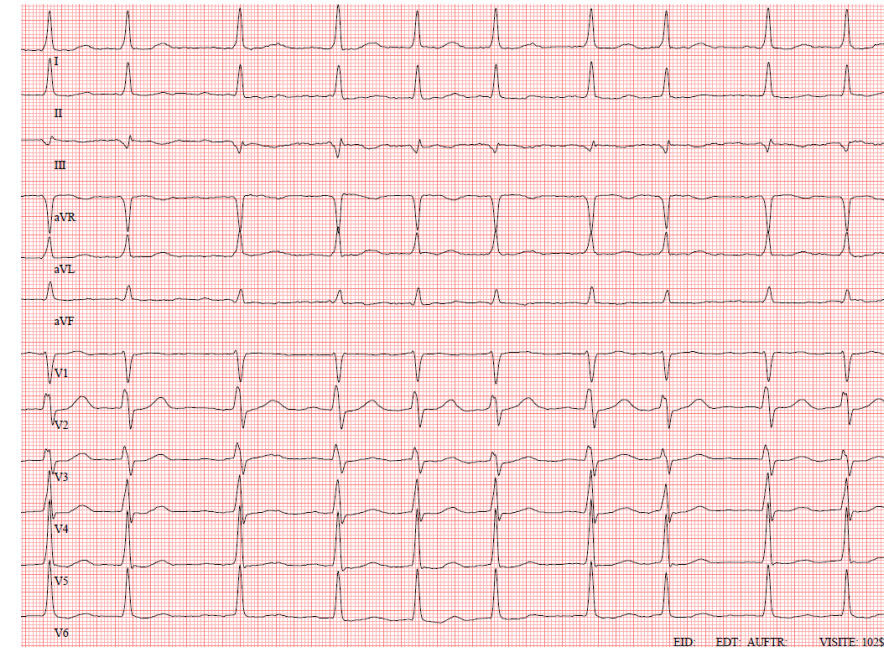


# Vorhofflimmer-Therapie



- Spricht für Rhythmuskontrolle:**
- junges Alter
  - kurze Episodendauer
  - Tachykardie-induzierte Kardiomyopathie
  - keine hochgradige Vorhoffdilataion
  - wenig Komorbiditäten
  - Fehlen einer strukturellen Herzerkrankung

## Rhythmuskontrolle



Falls >48h  
Thromben-  
Ausschluss  
mittels TEE!



# Breitkomplex- tachykardien



# Breitkomplextachykardien

**VT**  
(80%)

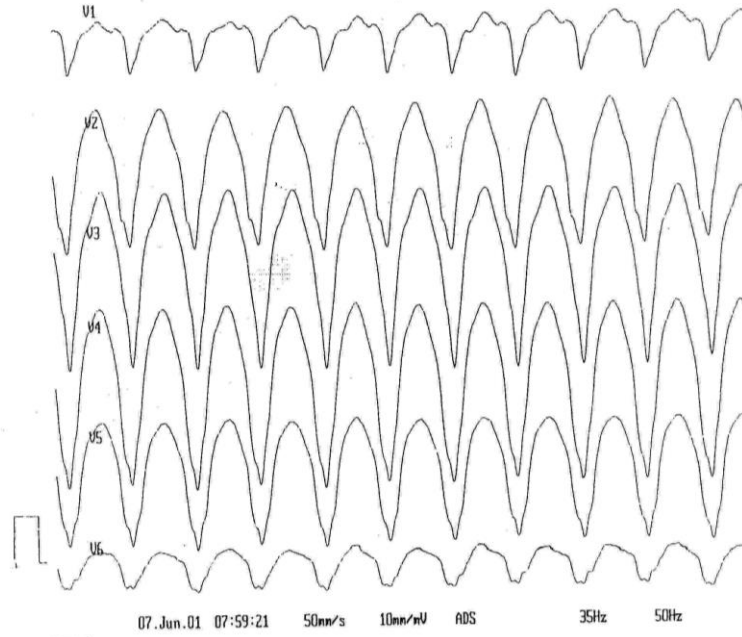
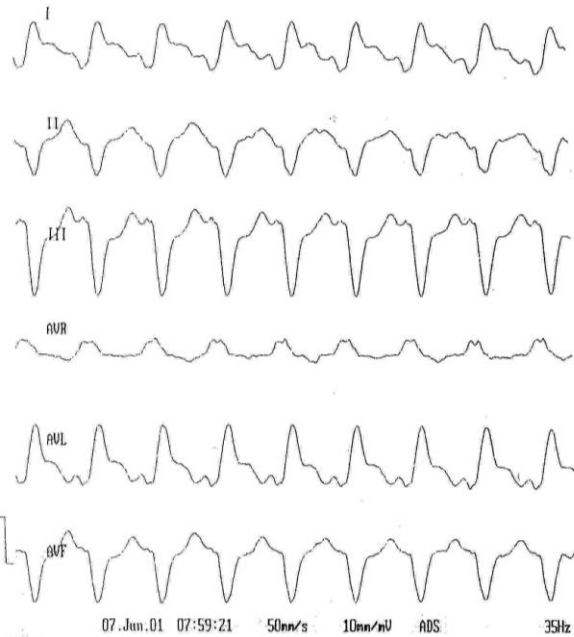
**Breitkomplex-  
Tachykardie**

**SVT + Aberration**

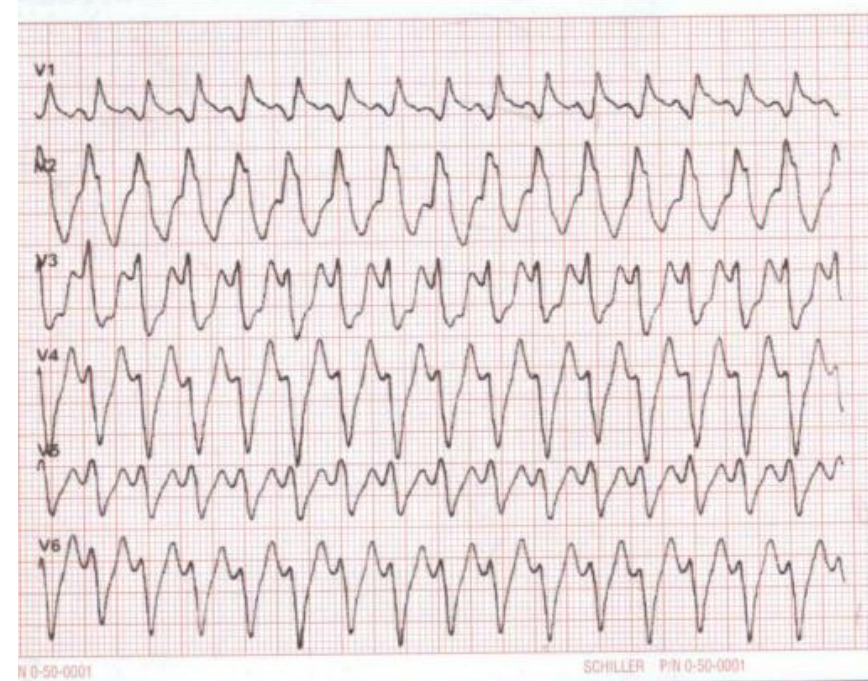
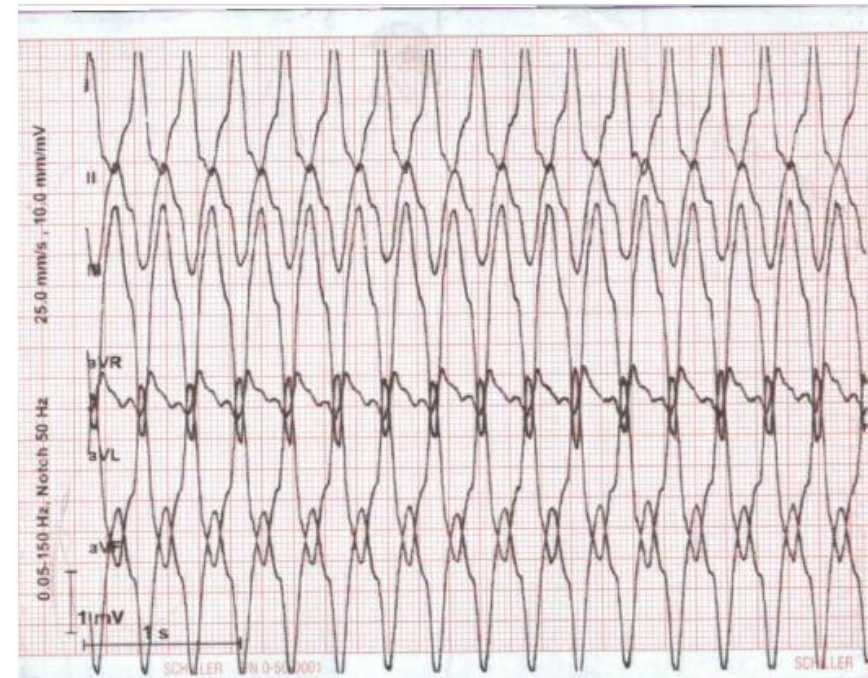
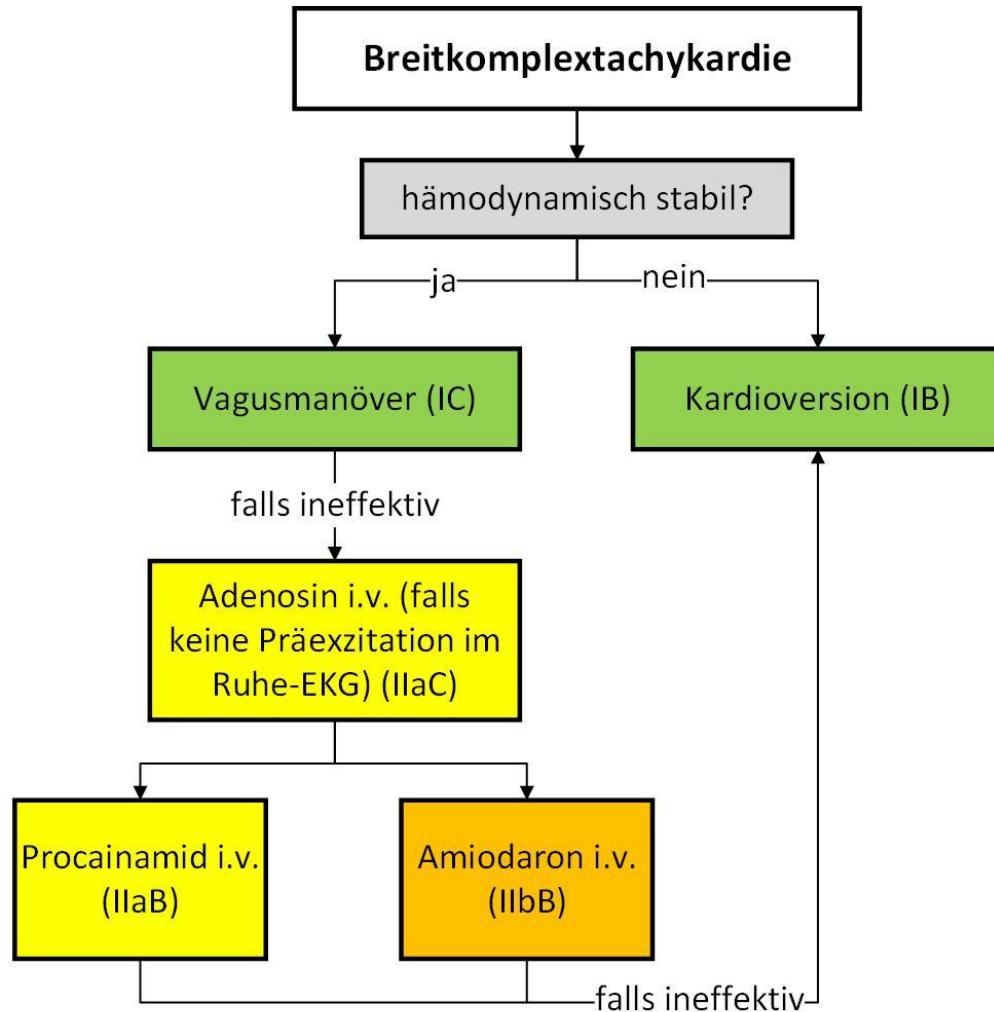
(Fixierter oder  
funktioneller  
Schenkelblock,  
Antiarrhythmika)

**Präexzitation**

Antidrome AVRT bei WPW  
Vorhofflimmern bei WPW

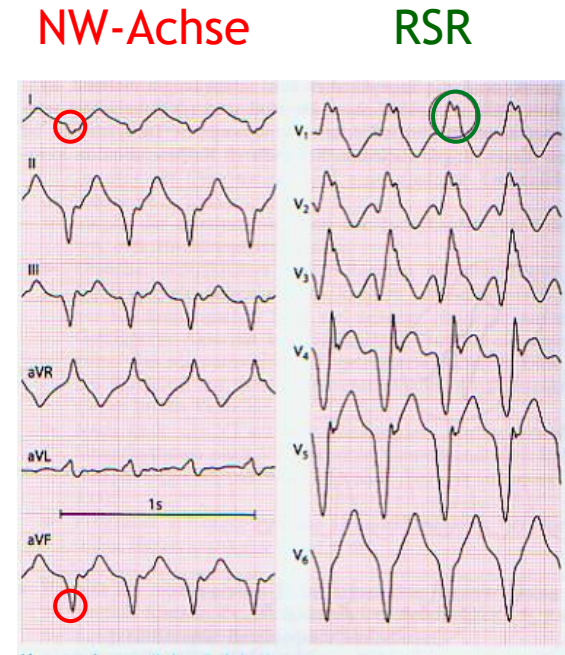


# (S)VT: Akuttherapie

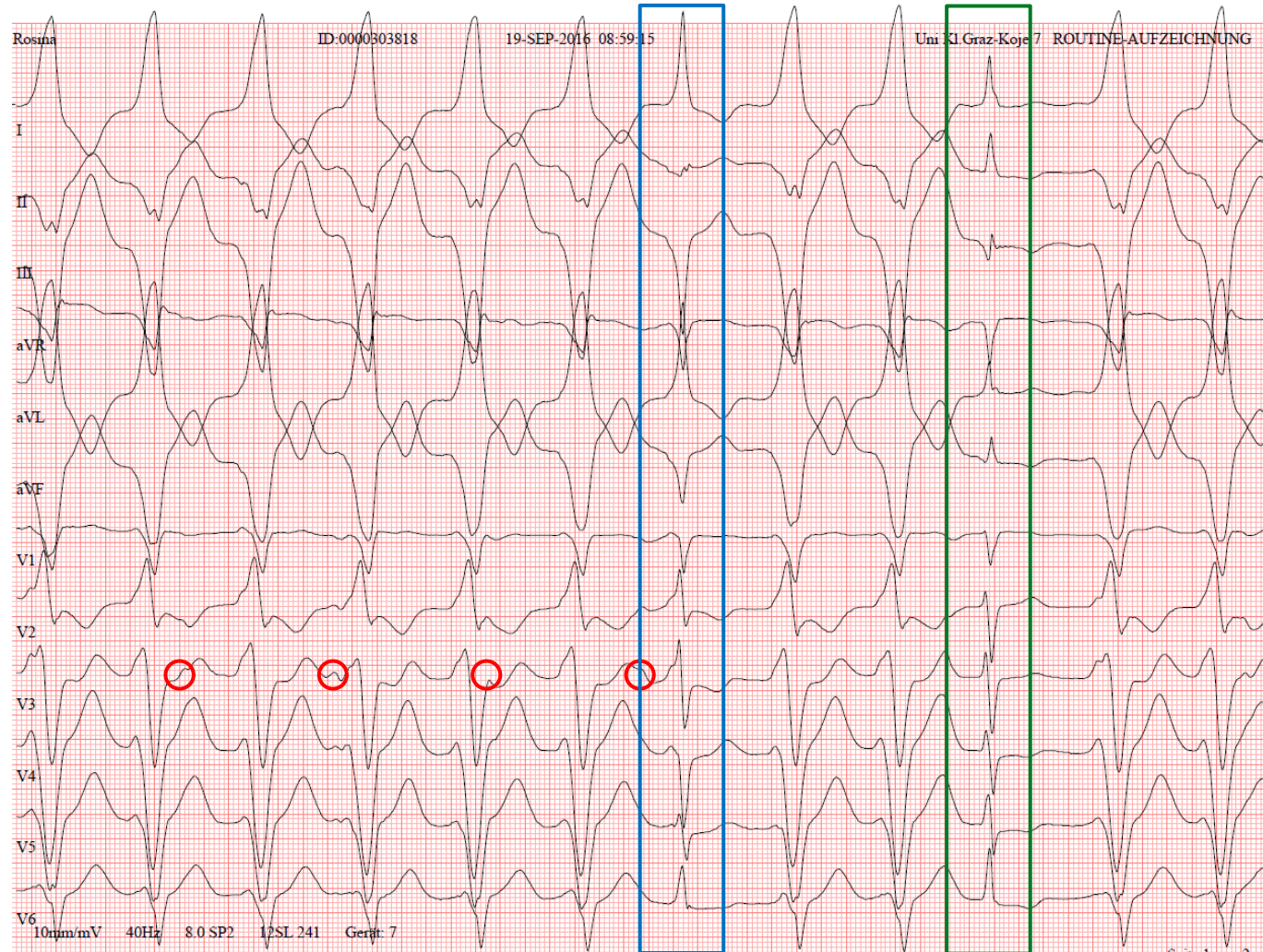


# VT-Diagnostik

- ▶ versch. Algorithmen (Brugada, Vierecke...)
- ▶ spricht für VT:
  - ▶ AV-Dissoziation
  - ▶ Fusionsschläge
  - ▶ Capture beats
  - ▶ QRS >140ms bei RSB, QRS >160ms bei LSB
  - ▶ Konkordanz der QRS-Komplexe in den Brustwandableitungen
  - ▶ „unmögliche“ Herzachse (Nordwest-Achse, neg. in I, aVF)
  - ▶ Deformiertes Schenkelblockbild
  - ▶ RSR in V1



# VT-Diagnostik



Fusion beat

Capture beat

V-A-Dissoziation



# Danke für die Aufmerksamkeit!

## Rhythmologie LKH Graz

