ATRIOVENTRICULAR JUNCTIONAL REENTRANT TACHYCARDIA (AVJRT)

INTRODUCING AVJRT

- *AVJRT signs, symptoms & Presentation*
- *Anatomy & Physiology of the AV junction*
- *Fast Pathway in the EP lab*
- *Slow Pathway in the EP lab*
- *ECG characteristics of AVJRT variants*

FEATURES OF DUAL AV NODAL PHYSIOLOGY (DAVNP)

- *Defining evidence of DAVNP in the EP lab*
- *Typical echo beat characteristics*
- *"Crossover" phenomenon*
- *Characteristics of typical AVJRT*

TECHNIQUES FOR INDUCING AVJRT

- *Antegrade Programmed Extra stimulus*
- *Atrial burst pacing*
- *RV burst pacing*
- *Utility of isoprenaline*
- *Hyperventilation*

INTRODUCING ENTRAINMENT AND POST PACING INTERVALS

- *Concept of Entrainment*
- *Post pacing response (VAVA – VAAV)*
- *Post Pacing Interval*

SA-VA & POST PACING RESPONSE

- *AVJRT Characteristics*
- *VAVA Response post pacing*
- *Post Pacing Interval – Tachycardia Cycle Length*
- *SA – VA*

POST PACING INTERVAL TO CONFIRM AVJRT

- *Post Pacing interval - Tachycardia Cycle length*
- *Measurements to make*
- *Concept during AVJRT*
- *Concept during AVRT*
- *Applying it to EGM's*

MAPPING AND ABLATING AVJRT I

- *Mapping strategy & success rates*
- *Ablation strategy*
- *Fluoroscopic guidance of ablation*
- *Positive predictors of Success*
- *Negative Predictors of Success*

MAPPING AND ABLATING AVJRT II

- *Practicing on live EGMs!*
- *Procedural endpoints*
- *Acute & Chronic procedural success*
- *Complication rate overview*
- *Anatomical variations within the triangle of Koch*
- *Techniques for retrograde mapping the fast pathway*
- *Techniques for antegrade mapping the fast pathway*

COMPLEXITIES & CONSIDERATIONS DURING AVJRT ABLATION

- *Cryo Vs RF pros and cons in AVJRT ablation*
- *Mapping & Ablating left sided AV nodal extensions*
- *What to do when initial RF ablation of AVJRT fails*
- *Catheter selection for AVJRT ablation.*
- *Power, temperature and regulatory mechanism during ablation. Food for thought.*

AVJRT IN 3D I

- *Navigating catheters using 3D mapping*
- *Pros and cons of using 3D mapping*
- *Tagging relevant signals for AVJRT ablation*

AVJRT IN 3D II - ADVANCED TECHNIQUES

- *Slow pathway mapping techniques*
- *Identifying areas of wavefront collision*
- *Voltage bridges for identifying the slow pathway*
- *Mapping the fast pathway*

AVJRT CASE STUDY

Walk through a typical AVJRT case

QUIZ: AVJRT IN THE EP LAB

ATRIOVENTRICULAR REENTRANT TACHYCARDIA (AVRT)

INTRODUCING AVRT: AN OVERVIEW OF ACCESSORY PATHWAY CONDUCTION

- *Anatomy of accessory pathways*
- *Distribution of accessory pathways*
- *Physiological properties of accessory pathways*
- *Concealed Vs Manifest accessory pathways*
- *Pre-excited ECG features*

INTRODUCING AVRT II: AVRT IN THE EP LAB

- *Signs of a manifest AP during an EP study*
- *Signs of a concealed AP during an EP study*
- *Orthodromic AVRT*
- *Antidromic AVRT*
- *Signs, Symptoms & Presentation*
- *Ablation of all accessory pathways?*

INDUCING AVRT

- *ORT induction with atrial pacing*
- *ORT induction with ventricular pacing*
- *ART induction with atrial pacing*
- *ART induction with ventricular pacing*

CONFIRMING AVRT: SA-VA AND POST PACING RESPONSE

- *SA – VA*
- *Post Pacing response VAVA Vs VAAV*
- *Familiarising yourself with EGM interpretation*

CONFIRMING AVRT II: POST PACING INTERVAL & VA DISSOCIATION

- *RV overdrive pacing*
- *Post Pacing interval - Tachycardia Cycle Length*
- *# of beats to entrain*
- *Familiarising yourself with EGM interpretation*

HIS SYNCHRONOUS RV PACING

- *Confirming AVRT with His Synchronous RV pacing*
- *His-Synchronous RV pacing during suspected ORT*
- *HSRVp response to AVJRT*
- *HSRVp response to left lateral accessory pathways*
- *HSRVp response to bystander accessory pathways*
- *Putting theory into practice*

PARAHISIAN PACING

- *How to perform Parahisian pacing*
- *No accessory pathway – response to Parahisian pacing*
- *Accessory pathway present – response to Parahisian pacing*
- *Common pitfalls when interpreting Parahisian pacing.*

ADDITIONAL FEATURES & PACING MANOEUVRES

- *Bundle branch block and VA time*
- *His Synchronous PAC during Antidromic AVRT*
- *VA time during RV apical Vs Basal Pacing*

RETROGRADE MAPPING & ABLATION

- *Concept of Activation mapping*
- *Atrial insertion – Activation mapping*
- *Differentiating Atrial & Ventricular signals during A&V fusion*
- *Response to ablation*
- *Procedural endpoints*

ANTEGRADE MAPPING & ABLATION

- *Concept of Activation mapping*
- *Ventricular Insertion Activation mapping*
- *Differentiating Atrial and ventricular signals during A&V fusion*
- *Response to ablation*
- *Procedural endpoints*

AVRT IN 3D POINT BY POINT MAPPING

- *Mapping atrial exits*
- *Mapping ventricular exits*
- *Defining the annulus*
- *Bump mapping*

AVRT IN 3D: OPEN WINDOW MAPPING

- *Open window mapping*
- *Advantages and disadvantages*
- *Defining the annulus*
- *Marking AV fusion*
- *Identifying pathway conduction*
- *Antegrade mapping*
- *Retrograde mapping*
- *Identifying epicardial origins*

CASE STUDY IN PRACTICE I: AVJRT VS AVRT

- *Walk through a case study utilising SVT differentiation techniques*

QUIZ: AVRT IN THE EP LAB

FOCAL ATRIAL TACHYCARDIA

P WAVE LOCALISATION

- *Understanding Focal AT general characteristics*
- *Differentiating LA Vs RA origin*
- *Differentiating anterior vs posterior origin*
- *Differentiating lateral vs septal origins*
- *Practicing ECG localisation of Focal AT*

FOCAL AT: MECHANISMS & CHARACTERISTICS

- *Overview of Focal AT*
- *Mechanisms of AT*
- *Electrophysiological properties of AT*
- *Enhanced Automaticity*
- *Triggered activity*
- *Micro-reentry*

ACTIVATION MAPPING

- *Roles and goals of Activation mapping*
- *Relationship between Focal AT origin and P wave onset*
- *Alternative reference points to P wave onset*
- *Choosing a stable reference: Pros and Cons*
- *Manoeuvres to unmask hidden P waves during Focal AT*

EGM MORPHOLOGY MATTERS

- *Significance of Unipolar EGM morphology*
- *Fractionation as a positive predictor of successful ablation sites*
- *Recognising far field electrograms*

EGM'S, SAFETY & ABLATION END POINTS

- *Phrenic nerve palsy*
- *Avoiding sinus node injury*
- *Collateral arterial injury during ablation*
- *Acceleration and termination response to RF application.*
- *Practicing signal recognition at successful ablation sites.*

VA LINKING

- *VA linking response during AVJRT/AVRT post RV overdrive pacing*
- *VA "unlinked" response during Focal AT post RV overdrive pacing.*

FOCAL ATRIAL TACHCYARDIA IN 3D

- *Why use 3D mapping in Focal AT?*
- *Understanding LAT maps in 3D mapping*
- *Annotating useful signals in 3D mapping*
- *Safety aspects of 3D mapping*
- *There are no good colours, only good signals*

CASE STUDY: 'SMOKING GUN'

QUIZ: FOCAL AT IN THE EP LAB

MEDICAL PERSPECTIVES, CASE STUDIES & MORE INFORMATION

MANAGING SVT: A MEDICAL PERSPECTIVE

- *Medical management of SVT*
- *When to ablate, when to medicate and when to leave it alone*

CASE STUDY: MISTAKES WERE MADE

- *Interpreting results from pacing manoeuvres*
- *Doubts & peculiarities requiring closer inspection*
- *Analysis of pitfalls of interpreting Pacing manoeuvres*

CASE STUDY: A STITCH IN TIME SAVES NINE

- *Interpreting results from pacing manoeuvres*
- *Doubts & peculiarities requiring closer inspection*
- *Analysis of pitfalls of interpreting Pacing manoeuvres*

CASE STUDY: OCCAM'S RAZOR

- *Interpreting results from pacing manoeuvres*
- *Doubts & peculiarities requiring closer inspection*
- *Analysis of pitfalls of interpreting Pacing manoeuvres*

BONUS: DIFFERENTIATING JET FROM AVJRT

- *Prevalence and presentation of Junctional Ectopic Tachycardia*
- *Pathophysiology*
- *ECG characteristics*
- *EP characteristics*
- *Differential pacing maneuvers*
- *Ablation: Outcomes & risk*