

The 44th Annual International Congress of the
**EGYPTIAN SOCIETY OF
CARDIOLOGY**
CardioEgyt2017

20-23
February 2017

**Value of transition zone during right
ventricular entrainment in determining site of
accessary pathway in orthodromic reentrant
tachycardia**

By
Marwan Sayed
Assistant lecturer
Cardiology department
Assiut University

Under supervision of

Prof Doaa Ahmed Fouad
Professor of cardiology -Assiut University

Prof Sherif Hamed Zaki **Prof Hosam Hassan Elaraby**
Professor of critical care Professor of Cardiology
Cairo University Assiut University

Dr-Ahmed Abdel-Galeel
Lecturer of cardiology-Assiut University



Background

RV entrainment is an important and simple pacing maneuver that can differentiate between orthodromic reentrant tachycardia (ORT) and atrioventricular nodal reentrant tachycardia (AVNRT).



This is done using certain measurements including:

1- Postpacing interval –tachycardia cycle length (**PPC-TCL**):
 $\geq 115\text{ms}$ for AVNRT and $< 115\text{ms}$ for ORT.

2- Stimulo atrial –Ventriculo atrial interval (**SA-VA**): $\geq 85\text{ms}$
 for AVNRT and $< 85\text{ms}$ for ORT.

3- Type of response on termination of entrainment: either
AAV response for atrial tachycardia and **AV response** for
 ORT and AVNRT.

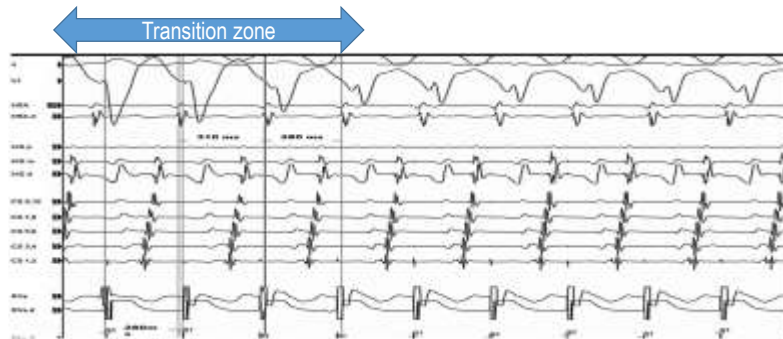


But can RV entrainment help in localization of accessory pathway in ORT??



- The **transition zone (TZ)** during right ventricular entrainment is defined as the region that contains paced complexes showing progressive QRS fusion and the first paced complex showing a stable QRS morphology. The end of the TZ, therefore, usually is a fully paced complex, but this complex may represent constant fusion in some patients with ORT.



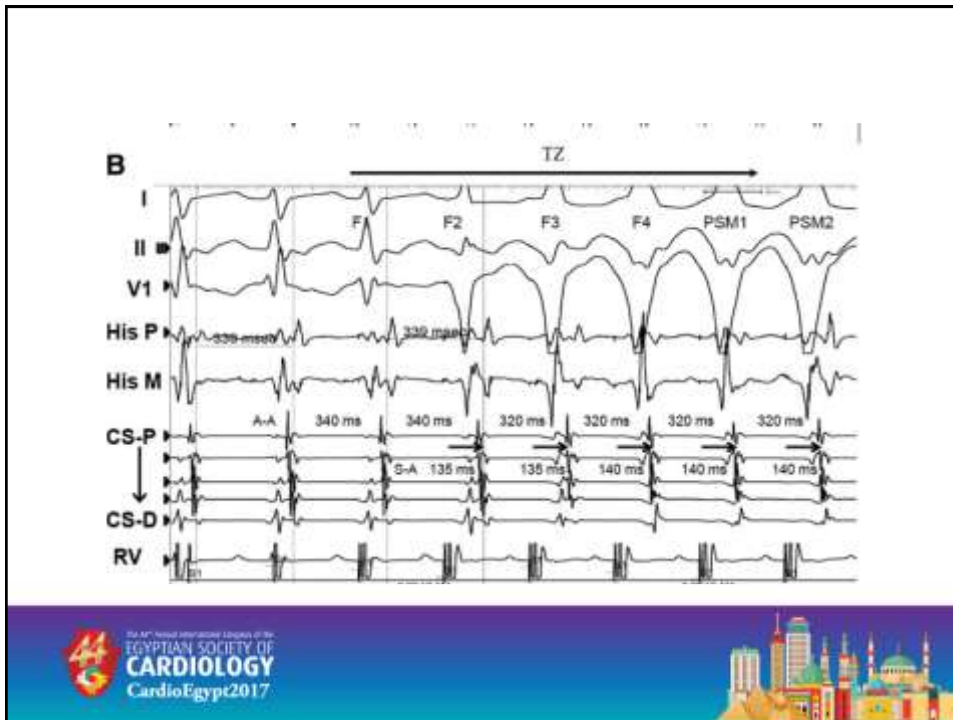


- Entrainment of the supraventricular tachycardia from the ventricle. Note progressive fusion of the QRS morphology until a fully stable paced morphology is seen



- In ORT SA interval (which is distance from stimulus to earliest atrial activity) becomes fixed within transition zone.
- A fixed SA interval was defined as varying by <10 ms.





Objective

- The purpose of this study was to determine whether the **number of beats with fixed SA interval in the TZ** predicts AP location in ORT and whether the value of **postpacing interval –tachycardia cycle length(PPI-TCL)** can help in localization of AP.

Methods

- We prospectively and retrospectively reviewed 34 patients with ORT (18 left-sided AP, 10 septal AP, and 6 right-sided AP) presented to EP lab. We analyzed the number of resetting beats during the TZ, demonstrated by fixed stimulus-atrial (SA) interval during RV entrainment and calculate PPI-TCL.



Results

- We found that total number of QRS complexes within TZ in ORT group was (5.1 ± 2.3) . The mean number of QRS complexes with fixed SA interval within TZ was **2.2±1.1 for left AP, 3.9±1.1 for septal AP, 3.4±0.9 for right AP.**

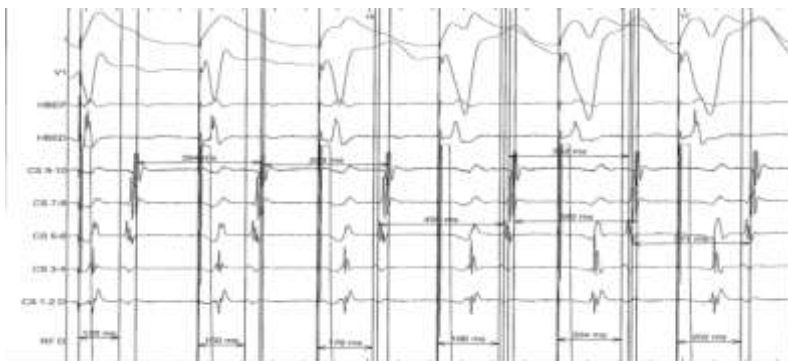


	Septal AP	Left lateral AP	Right AP	P. value
N0 of QRS within TZ with fixed SA	3.5±0.8	2±0.6	3.4±0.9	0.001**

- From ROC curve analysis **cutoff point** for number of QRS with fixed SA interval within TZ was **≤2 for left AP** versus **right and septal AP**.

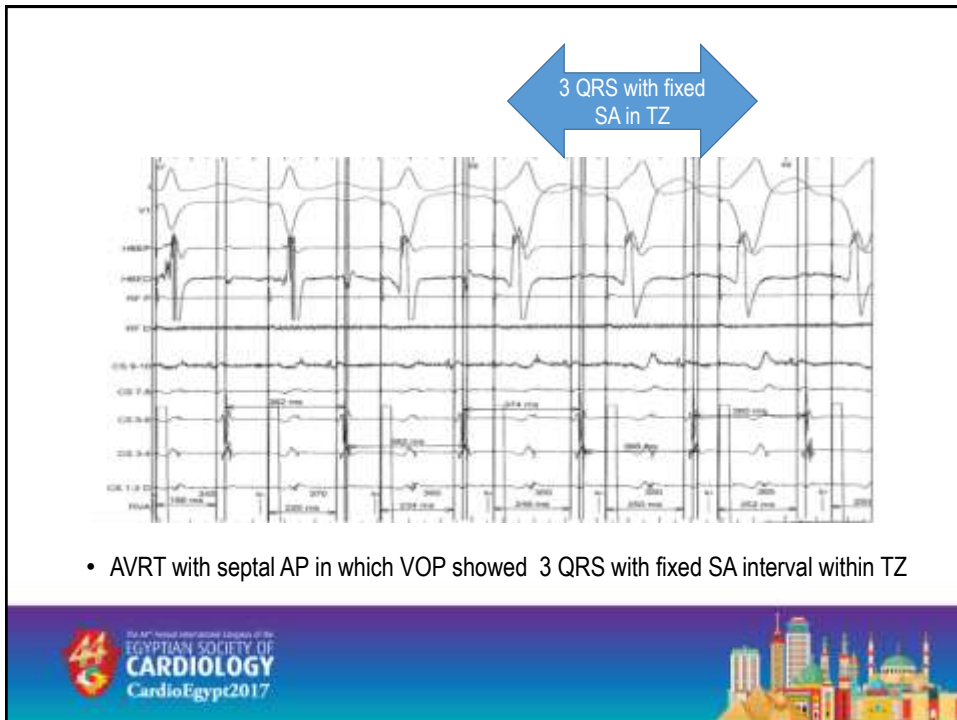


2 QRS with fixed
SA in TZ



- case of AVRT in which VOP showed 2 QRS with fixed SA interval within TZ. This patient has left lateral AP.





- Sensitivity, specificity, PPV and NPV of no of QRS within TZ with fixed SA interval in different types of accessory pathways

	No. of QRS within TZ with fixed SA interval				
	Sensitivity	Specificity	PPV	NPV	Accuracy
Septal AP vs. LT lateral AP	100.0	81.8	75.0	100.0	90.9
Septal AP vs. RT AP	33.3	80.0	66.7	50.0	56.8
LT lateral AP vs. RT AP	81.8	100.0	100.0	71.4	90.9

Value of PPI-TCL in determining site of accessory pathway in AVRT group

- From analysis of ROC curve we found that **cutoff point >92ms with left AP** and **cutoff point ≤61 ms with right AP** and **62-92 ms for septal AP.**



- **Sensitivity, specificity, PPV and NPV of PPI-TCL interval in different types of accessory pathways**

	Sensitivity	Specificity	PPV	NPV	Accuracy
LT lateral AP vs. RT and sept	72.7	100.0	100.0	78.6	86.4
RT lateral AP vs. sept	100.0	87.5	75	100	93.7



Conclusion

- Assessing the number of beats in the TZ with fixed SA interval during RV entrainment helps to determine AP location in ORT with a cutoff point of <2 for left lateral AP. Also PPI-TCL value help in localization of AP with a cutoff point of >92 ms for left AP and ≤ 61 ms for right AP and 62-92ms for septal AP.



ACKNOWLEDGEMENT



Many Thanks

