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Electrophysiologic study findings and management in patients presenting with “ghost” tachycardias.

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Nothing to declare

Background

- Non-documented palpitations or phantom tachycardias are palpitations deemed to be of unknown origin after evaluation with conventional diagnostic tools such as 12-lead electrocardiogram and Holter recordings
- For up to 16 percent of such patients the sensation of a rapid or irregular heart beat remains unexplained after initial evaluation with history, physical examination and electrocardiogram

EPS and non-documented palpitations

- According to current diagnostic practice, electrophysiologic study (EPS) as an invasive procedure, is usually considered at the end of the diagnostic work-up
- Few data exist regarding the value of EPS when performed as part of the diagnostic algorithm of nondocumented palpitation in patients without structural heart disease

Aim

- **The aim of the present study was to determine the diagnostic value of EPS and its role in the management of patients presenting with non-documented palpitations**

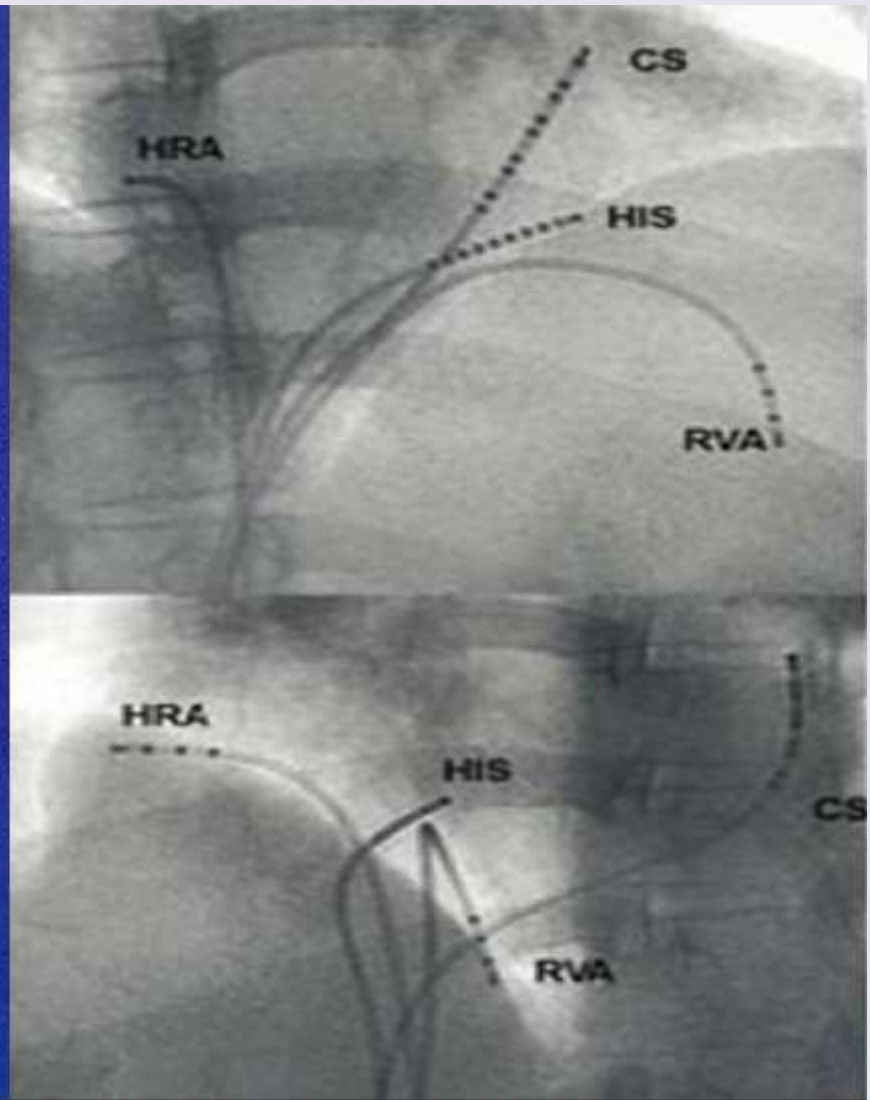
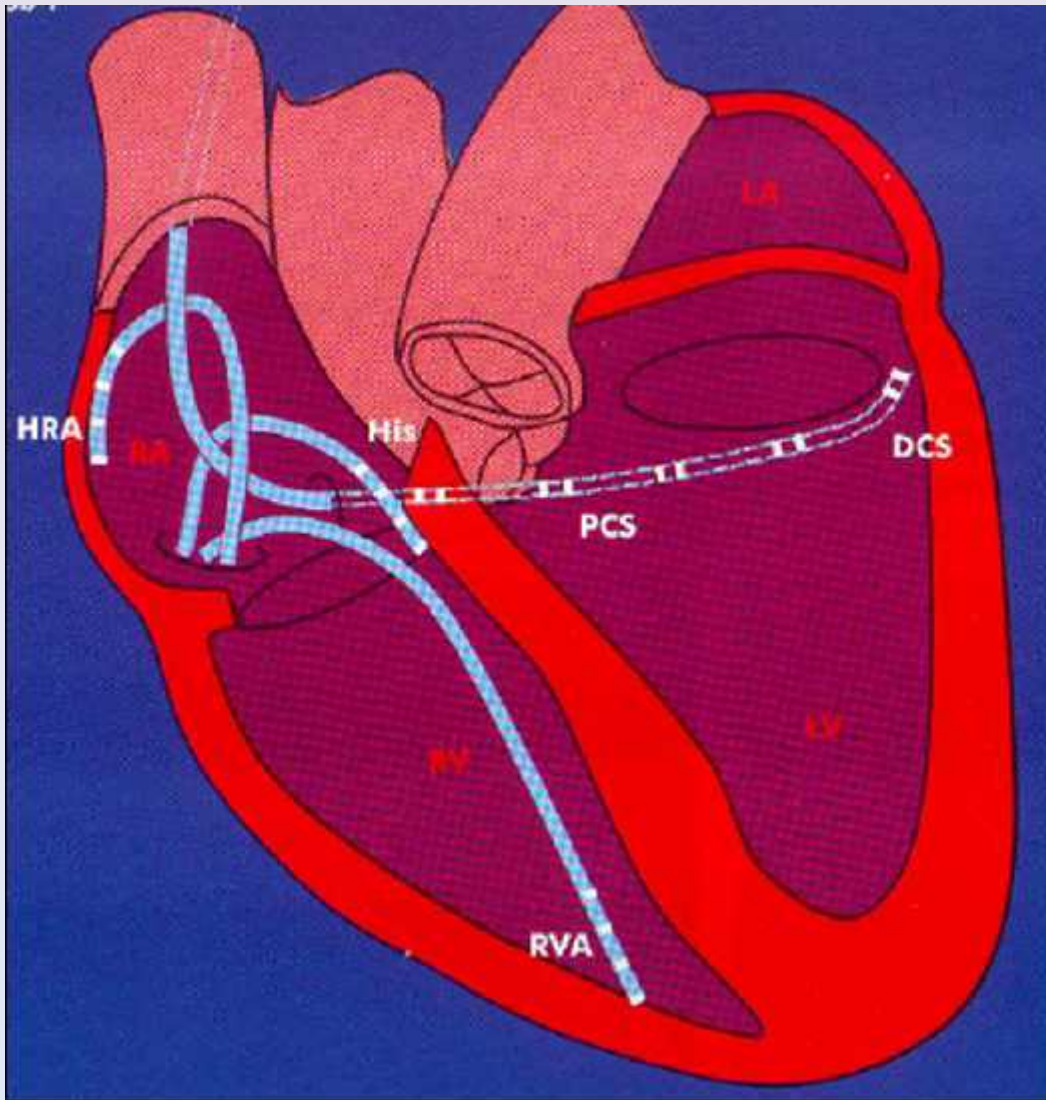
Methods

- From January 2004 to December 2014, 78 consecutive patients, who were referred for repeatable poorly tolerated symptoms of paroxysmal non-documented tachycardia, and with a negative routine initial evaluation including
 - History
 - physical examination
 - 12-lead electrocardiogram
 - transthoracic echocardiography
 - blood chemistry examinations and
 - at least one 24-h Holter recording
- underwent EPS

Exclusion criteria

- **The duration and frequency of palpitation was registered in each patient.**
- **Patients with sustained tachycardia detected during noninvasive testing, a history of documented arrhythmias and with other known medical causes of the symptoms were excluded from the study.**
- **Patients with significant structural heart disease and systematic illnesses were also excluded.**
- **Event loop recorders, external loop recorders or implantable loop recorders (ILRs) were not used in any patient.**

EPS



EPS protocol

- **An EPS was performed using standard protocol.**
- **catheters were advanced to the high right atrium, right ventricular apex His bundle position**
- **Decapolar deflectable-tip catheter was positioned in the coronary sinus**
- **A typical protocol of an incremental right atrial pacing and extrastimulus testing was performed in all patients. ms).**
- **In cases without induced tachycardia, the protocol was repeated after infusion of isoprotenerol.**
- **Programmed ventricular stimulation with ≤ 3 extrastimuli was also performed in the absence of supraventricular tachycardia induction.**

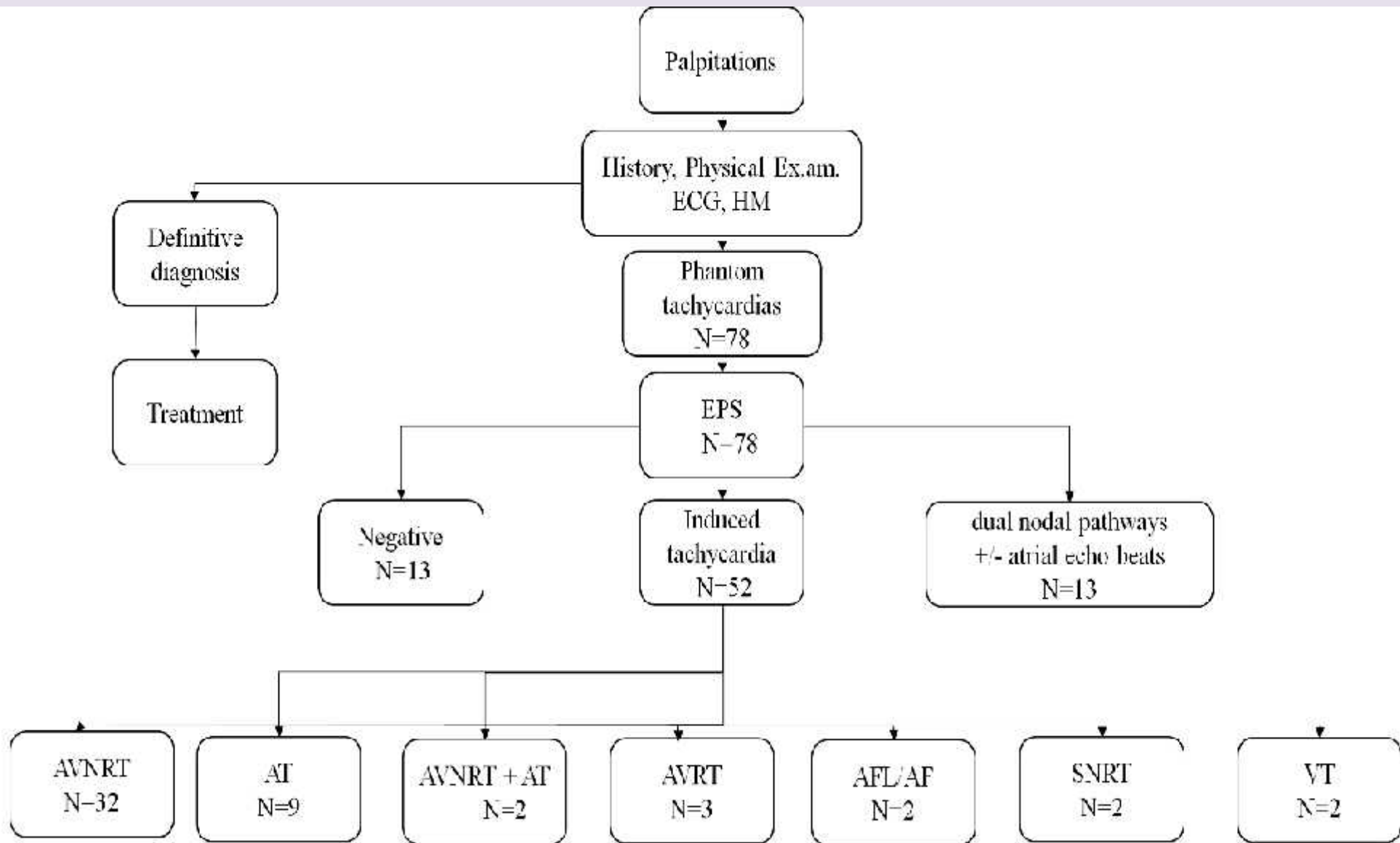
Results

- **The duration of palpitations was**

- <1min in 23.1% of patients
- 1-5min in another 23%
- between 5 min and 1 hour in 38.5% and
- finally long-lasting (>1 hour) in 15.4%.

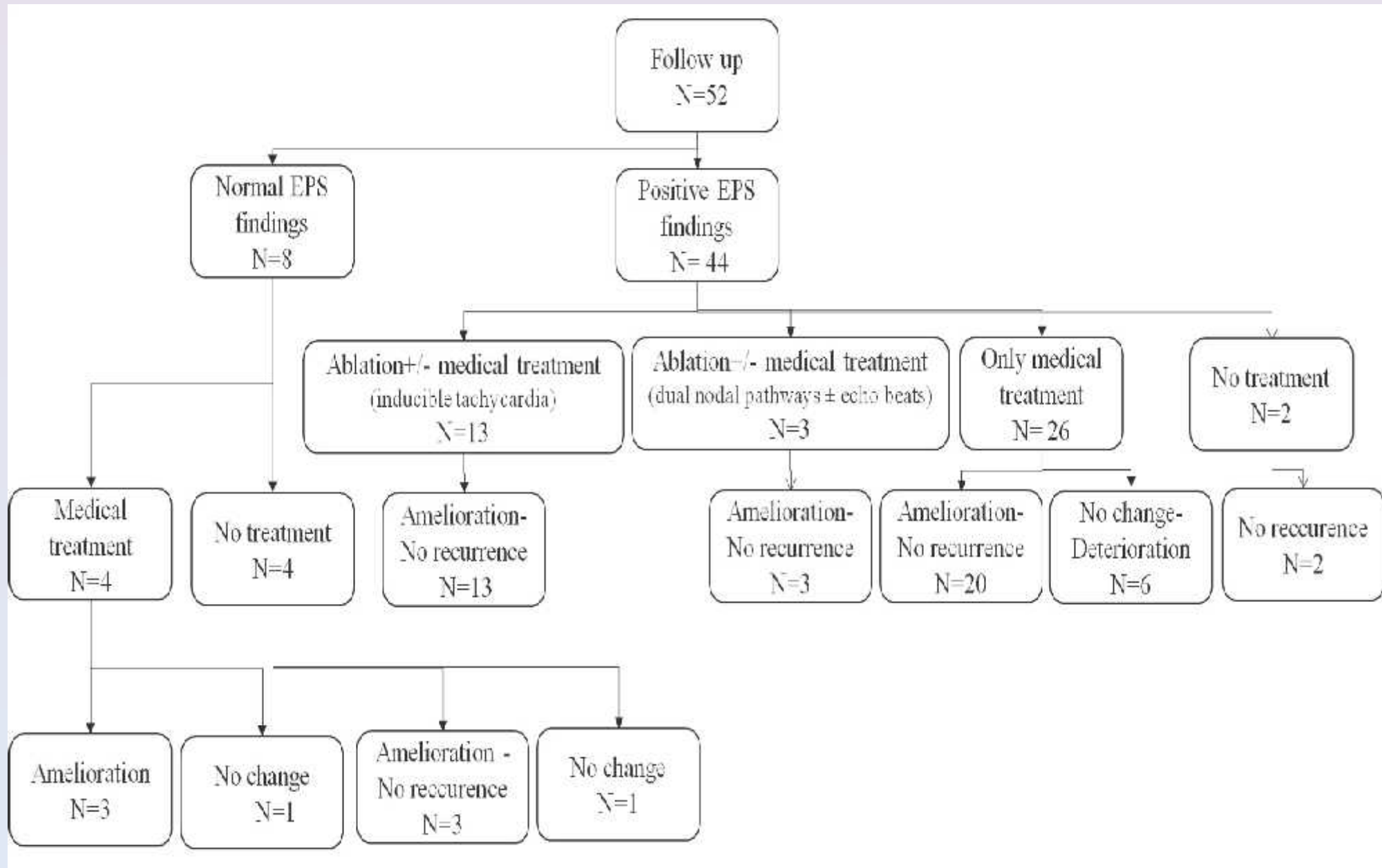
- **Regarding the frequency of episodes**

- 12.8% of patients reported symptoms less often than once/6months
- 21.8% had > 1 episodes at six months but less often than 1 at month
- 15.4% had >1 episode/month but less than 1/week and
- 50% had >1 episode/week



Ablation

- Ablation was performed in 14/52 patients with inducible tachycardia (26.9%).
- Ablation was performed at the same day in 8 of these 14 patients.
- The ablated induced tachycardias were mostly AVNRT (10/14).
- Slow pathway ablation was also performed in 3 patients with drug-refractory symptoms and dual AV pathways with atrial echo-beats but without provoked tachycardia



Follow up

- **Follow-up data were available in 52 patients.**
- **Mean follow up period was 84 ± 37 months.**
- Among the 52 patients with available follow-up data,
 - only 1 patient mentioned deterioration of palpitations frequency
 - 7 reported no change in palpitations frequency
 - 26 patients (50%) had less and
 - 18 patients (34.6%) had no clinical recurrences
- **All but one patients who underwent ablation mentioned amelioration of clinical symptoms.**

Conclusion

- **Firstly, we have demonstrated that EPS is safe and of enhanced diagnostic value in patients with unexplained palpitations, since only 1/6 had negative results.**
- **Secondly, EPS provided explanation about the mechanism of arrhythmia.**
- **Moreover, EPS guided successfully the management of these patients and enhanced improvement in the quality of their life.**
- **Finally, this study confirmed the therapeutic power of RF ablation in patients with inducible tachycardia and supported the empirical slow pathway ablation when the frequent and refractory to medical treatment unexplained palpitations were associated with EPS detected dual nodal pathways and atrial echo beats, even in the absence of induced AVNRT**