



PREVALENCE OF WPW SYNDROME AMONG ALL SUPRA VENTRICULAR TACHYCARDIA PATIENTS IN A TERTIARY CARE HOSPITAL IN RAJASTHAN

Cardiology

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ABSTRACT

A frequent reason for hospital admissions, supraventricular tachycardia (SVT) can result in severe discomfort and distress for patients. Atrioventricular nodal re-entrant tachycardia, atrioventricular re-entrant tachycardia, and atrial tachycardia are the three most prevalent SVT. Electrocardiography during tachycardia can often be used to determine the underlying mechanism by comparing it with sinus rhythm and evaluating the onset and offset of tachycardia. Re-entrant tachycardias involving the atrioventricular node, such as atrioventricular nodal re-entrant tachycardia and atrioventricular re-entrant tachycardia, are extremely responsive to vagal manoeuvres and adenosine administration for termination. Due to a pre-existing or rate-related bundle branch block, any SVT may manifest as a broad complex tachycardia. VT should always be regarded as a differential diagnosis of broad complex tachycardia due to the potential for diagnostic uncertainty. As many patients go undiagnosed and suffer from recurrent tachycardia which leads to morbidity and mental distress, patients with SVT should be referred to an electrophysiologist for electrophysiological study and Radiofrequency ablation as definitive treatment. This study was done to look for the prevalence of WPW among all patients with SVT who presented to tertiary care centre of Rajasthan

KEYWORDS

SVT , AVRT, WPW syndrome , Prevalence

INTRODUCTION

A heterogeneous group of arrhythmias known as supraventricular tachycardia (SVT) is used to characterize tachycardias involving cardiac tissue at the level of the bundle of His or above.¹ The prevalence of SVT is 2.25/1000 persons with a female predominance of 2:1 across all age groups.^{2,3} SVT increases patient morbidity, particularly when symptoms are frequent or incessant, and in a small cohort of patients with atrial fibrillation (AF) and ventricular pre-excitation, it can be life-threatening.

Atrial tachycardia

The atrium is where atrial tachycardia (AT) begins, and the AV node has no influence over its actions. The P-waves on the surface ECG are morphologically different from the sinus P-wave, but they appear monomorphic with a stable tachycardia cycle length. There are two mechanisms: re-entrant and focal. In clinical practice, typical atrial flutter is the most common type of AT

Atrioventricular nodal re-entrant tachycardia

More than 60% of patients undergoing invasive cardiac electrophysiology studies have AVNRT, the most prevalent SVT in the general population. It is made possible by the AV node's two functionally separate electrophysiological tracts—a slow pathway and a fast pathway—with varying conduction velocities and refractory periods.

Atrioventricular re-entrant tachycardia

The AV node is one of the two essential parts of the AVRT circuit, and the accessory pathway (AP), which connects the atria and ventricle, is an embryological remnant. These extra-nodal connections can conduct in one of three ways: from ventricle to atrium (not visible on sinus rhythm ECG and referred to as "concealed"), from atrium to ventricle (manifest ventricular pre-excitation or Wolff-Parkinson-White pattern ECG), or both. Since the AV node still limits the maximum rate of ventricular activation during AF, concealed APs are clinically safe.

Both the AP and the AV node may conduct to the ventricle in sinus rhythm with ventricular pre-excitation that is evident. This means that conduction via the AP "pre-excites" the ventricle before conduction via the AV node and His-Purkinje tissue. This gives the characteristic ECG findings of a short PR interval (<120 ms), slurred onset, and broadening of the QRS. Approximately 90% of AVRTs are orthodromic, in which the impulse travels from the atrium to the

ventricle via the AV node and from the ventricle to the atrium via the AP.²

Less commonly, antidromic tachycardia can occur where the AP conducts anterogradely and the node provides the retrograde limb of the tachycardia as it re-enters the atrium from the ventricle via the His-Purkinje network; the QRS complex, therefore, appears broad and fully pre-excited. Because the P-waves are buried in the ST segments, it can be challenging to distinguish between ventricular tachycardia (VT) and antidromic AVRT.

The presence of pre-excitation during sinus rhythm recordings favours the former diagnosis.

It should also be noted that if WPW syndrome is associated with AF, the use of most antiarrhythmic drugs like beta blockers calcium channel blockers and digoxin, are not allowed to be used because they impair conduction through the AV node and thus increase conduction through the accessory pathways.⁴

One of the most effective ways to significantly increase the success of ablation is to locate local electrical conduction pathways in the heart by EPS.⁵

The most important cause of death in people with this syndrome is ventricular fibrillation⁶

WPW syndrome: The Wolf Parkinson White syndrome characterized by

1. Short PR interval
2. Broad QRS with delta waves
3. Symptomatic palpitations or documented AVRT tachycardia.

As many patients go undiagnosed and suffer from recurrent tachycardia which leads to morbidity and mental distress, patients with SVT should be referred to an electrophysiologist for Radiofrequency ablation as definitive treatment

This study was done to look for the prevalence of WPW among all patients with SVT who presented to the tertiary care centre of Rajasthan.

Methodology

This is a retrospective study in which patients who came with palpitation and also had documented SVT were included.

Only patients more than 18 years old were included

After written and informed consent all patients were posted for EP study and RFA and data was analysed.

Total of 532 patient with documented SVT were studied in the past 3 years out of which 166 patients were diagnosed as AVRT . Among these 166 patients 99 had manifest pathways which were included in our study

RESULTS

1. Distribution Of Patients According To Age, Gender, Pathway : Table 1 Distribution Of Patient According To Age , Gender , Pathways In Male And Female

AGE IN YEARS	NO. OF PATIENTS
<18	4
19-45	56
46-59	26
>60	11
GENDER	
MALE	55
FEMALE	42
PATHWAY	
LEFT	49
RIGHT	45
OTHERS	3
PATHWAYS IN MALES	
LEFT	23
RIGHT	30
OTHERS	2
PATHWAYS IN FEMALES	
LEFT	26
RIGHT	15
OTHERS	1

2. Types Of Left Sided Pathways:

Table 2 Distribution Of Left Sided Pathways

LOCATION OF LEFT SIDED PATHWAYS	NO OF PATIENTS
ANTERIOR	2
ANTERIO LATERAL	10
LATERAL	20
POSTERIOR	11
POSTERIO LATERAL	4
POSTERO SEPTAL	2

Table 2 suggest that, 2 patients had left anterior pathway, 10 had antero-lateral pathway, 20 patients had left lateral pathway, 11 patients had posterior pathway, 4 patients had left postero-lateral pathway, and 2 patients had left postero-septal pathway.

3. Types Of Right Sided Pathway:

Table 3 Distribution Of Right Sided Pathway

LOCATION OF RIGHT SIDED PATHWAYS	NO OF PATIENTS
ANTERIOR	1
ANTERIO-SEPTAL	2
CS-DIVERTICULUM	4
CS-EPICARDIAL	5
CS-OS	5
FREE WALL	6
POSTERIOR	5
POSTERIO-LATERAL	1
POSTERIO-SEPTAL	16

Table 3 suggest that 1 patient had right anterior pathway, 2 patients had antero-septal pathway, 4 had CS – diverticulum, 5 patients had CS epicardial, 5 patients had CS OS pathway, 6 patients had right free wall pathway, 6 patients had posterior and postero-lateral pathway, and 16 patients had postero-septal pathway.

DISCUSSION

The above analysis leads to following observations:

1. Out of 532 SVT patients 99 patients were diagnosed as WPW

syndrome which leads to 18.6 % as prevalence of WPW syndrome

2. Maximum number of patients were of the age group 19-45 years of age.
3. There were 55 males and 42 female patients in our study.
4. 51% of patients had left sided pathways, 46% had right sided pathways, and 3% had others including CS epicardial or multiple pathways.
5. 54% of male patients had right sided pathways and 42 % of male patients had left sided pathways, and 4% had others.
6. 62% of female patients had left pathway, 36% had right sided pathways, and 2% had others.
7. Thus in males, right sided pathways are more common and in females, left sided pathways are more common.
8. 2 patients had left anterior pathway, 10 had antero-lateral pathway, 20 patients had left lateral pathway, 11 patients had posterior pathway, 4 patients had left postero-lateral pathway, and 2 patients had left postero-septal pathway. This suggests that, most common location of left sided pathway was left lateral pathway.
9. 1 patient had right anterior pathway, 2 patients had antero-septal pathway, 4 had CS – diverticulum, 5 patients had CS epicardial, 5 patients had CS OS pathway, 6 patients had right free wall pathway, 6 patients had posterior and postero-lateral pathway, and 16 patients had right postero-septal pathway. This suggests that most common location of right sided pathway was right postero-septal pathway.
10. The above analysis also suggests that overall, most common pathway was left lateral pathway.

CONCLUSION:

Total patients in our study were 97, all presented with WPW syndrome with 55 males and 42 females. maximum patients were of the age group 19-45 years of age. More patients had left sided pathways than right sided pathways. But in males, more common was right sided pathway, and in females more common was left sided pathways. Looking at the locations, amongst left sided pathway, most common was left lateral and amongst right sided pathways, most common was postero-septal pathway, and least common were right anterior and left anterior pathways. Overall most common pathway was left lateral pathway.

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