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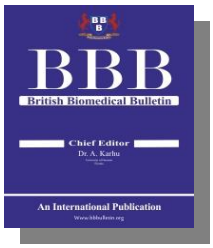

Case Report

Neonatal Supraventricular Tachycardia – Not Uncommon; Yet Often Unrecognized

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A R T I C L E I N F O

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A B S T R A C T

Supraventricular tachycardia (SVT) in neonates is often asymptomatic; but may be fatal too. Clinical presentation in newborns is usually with non-specific symptoms. This is the reason why the diagnosis is either missed or made late. We report a 19 days neonate who presented with non- specific symptoms, had tachycardia and electrocardiogram showed features suggestive of SVT. Conclusion: Diagnosis of SVT in neonates is often not straight forward; hence all tachycardia in neonates should be documented to look out for arrhythmia. A high index of suspicion is needed to diagnose SVT in neonates.

Introduction

Arrhythmias are seldom observed in neonates and rarely lead to serious consequences. The incidence is about 1% in neonates[1]. Long-term tachycardia and bradycardia attacks induced by neonatal arrhythmias may cause cardiac failure and hydrops foetalis[2]. Arrhythmia in neonate may be ongoing foetal arrhythmia. For the same reason, neonatal arrhythmia is different from pediatric or adult arrhythmia[3]. Majority clinically asymptomatic; but SVT in neonates is potentially fatal. Diagnosed early it has an excellent prognosis.

Case Report

We report a case of a 19 days old neonate with SVT. The baby was a third born male in a non-consanguineous marriage. The other two siblings are alive, healthy and with no other family members having any cardiac disease. The antenatal history was uneventful and it was a full term normal delivery with birth weight of 3kg. The baby was asymptomatic till day 17 of life.

On day 19, the baby was presented with complaints of refusal of feeds, hurried breathing and vomiting for 2 days. On examination, heart rate was 340/min; not in shock. Electrocardiogram (ECG): Narrow complex short RP tachycardia suggestive of atrial ventricular reentry tachycardia. Sepsis and metabolic work up normal. Echo: No structural lesions.

Treated with injection Adenosine (100 microgram per kilogram body weight) for a transient response. After a second dose (100 microgram per kilogram body weight) reverted to normal sinus rhythm. The baby was discharged on Propranolol (1milligram per kilogram body weight per dose twice daily). The baby is on follow up, 9 months old and there was no reappearance of SVT.

Discussion

In an infant with tachycardia, SVT is the most probable diagnosis if it matches the following conditions (i) a heart rate above 200 bpm, (ii) origin of rhythm from the atrium, (iii) a regular and narrow QRS-complex[4]. In neonates, AV re-entrant tachycardia is common[5]. The heart in a neonate with SVT may be structurally normal or there may be congenital heart disease (Ebsteins anomaly and L-transposition of great arteries). Congenital heart disease was detected in 28%[6] and conduction defects in 20–50% of neonatal SVT[7,8]. Other etiologies of SVT are the following- Myocarditis, sepsis, hypoglycemia, hyperthermia, congenital hyperthyroidism[9]. Between AV nodal re-entry tachycardia (AVNRT) and orthodromic reciprocating tachycardia (ORT), ORT is common in neonatal SVT. Because the clinical approach to both arrhythmias is similar, most centers do not attempt to distinguish between these mechanisms[10].

Clinical presentation in newborns is usually with non-specific symptoms. This is the reason why the diagnosis is either missed or made late. The non-specific symptoms may be poor feeding, lethargy, vomiting, irritability, tachypnea and dusky peripheries. Symptoms of heart failure usually appear after 24 hours[4]. A tachycardia above 200 bpm, with a regular and narrow QRS-complex in ECG supports the diagnosis. It is of primary importance to terminate SVT in all infants. Vagal manoeuver, applying ice pack over face are not safe in neonates[11]. As per Mahesh *et al.* study[11] "Direct current electrical cardioversion is the treatment of choice for SVT presenting with CCF. We have found no morbidity related to the procedure." Electrical cardio version is initiated with dose of 0.5 joule (w-sec)/kg and if needed,

increased to 2 joules/kg[6,12]. Adenosine with short onset of action of 30 sec, and a short half-life transiently blocks atrioventricular node[13]. Drugs Adenosine, Esmolol, and Amiodarone singly or in combinations are used. After treatment of the first episode, treatment has to be continued with beta blocker (propranolol). "Natural history studies in patients who have SVT have demonstrated that approximately 70% of infants lose SVT inducibility by 1 year of age, and clinical recurrences are uncommon."[13].

Conclusion

Diagnosis of SVT in neonates is often not straight forward; hence all tachycardia in neonates should be documented with monitor/ECG strips to look out for arrhythmia.

Expert Advice is never far away; but without evidence, even experts will struggle.

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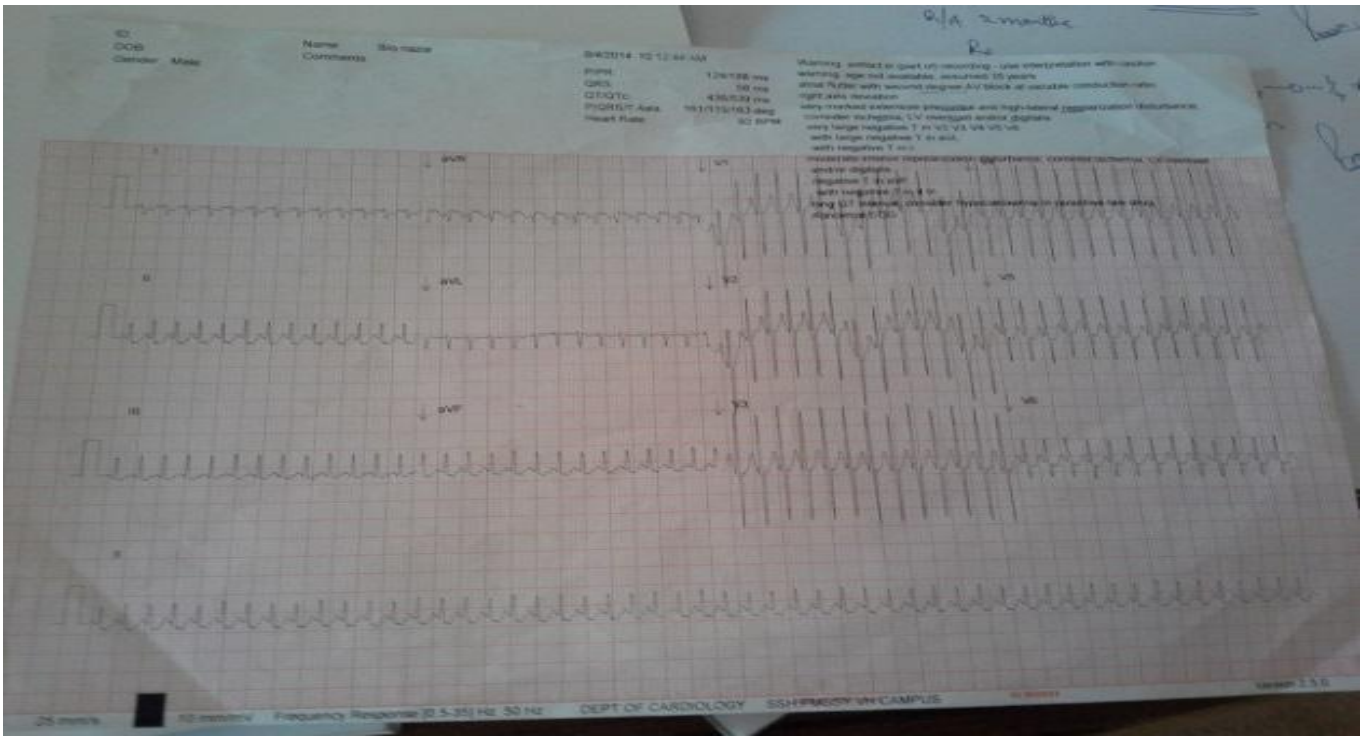

Figure 1. ECG-Narrow complex short RP tachycardia

Figure 2. Before treatment

Figure 3. After treatment