

Supraventricular tachycardia in a neonate with respiratory syncytial virus infection

Respiratuvar sinsityal virüs enfeksiyonlu bir yenidoğanda supraventriküler taşikardi

We report a neonate with supraventricular tachycardia (SVT) who presented with respiratory findings due to respiratory syncytial virus (RSV) infection.

A previously well 12-day-old male infant was admitted with a two-days history of increasing respiratory effort. He was delivered at term with a birth weight of 3600 gram after an uneventful pregnancy with good Apgar scores. The patient experienced neither β -agonist nor other therapy. Initial physical examination demonstrated an afebrile, pale, poorly responsive infant who was tachypneic (65 breaths/min) with slight intercostal and subcostal retractions. Breath sounds were clear. Oxygen saturation was 96% by pulse oximetry. Auscultation of the heart disclosed tachycardia (300 beats/min) and a gallop rhythm. There were no cardiac murmurs and pulses were normal. The liver was palpated 3 cm below the right costal margin.

A chest X-ray showed a normal heart size and bilateral infiltration of the upper and hyperinflation of the lower zones. An electrocardiogram (ECG) confirmed SVT with a narrow QRS complex (Fig. 1). Echocardiogram demonstrated a structurally normal heart with normal left ventricular function and no pericardial effusion. The results were normal for urine, blood counts, erythrocyte sedimentation rate, electrolytes and thyroid function tests. Blood gas analysis were also normal. Post nasal aspirate that was taken on the first day of admission was positive for RSV in the tissue culture. Cultures for other viruses, bacteria and fungi yielded no growth.

As an emergent therapeutical approach we applied ice to the patient's face very briefly but no effect was observed. However after the administration of i.v. digitalis (15 μ g/kg) the cardiac rhythm had reverted to normal within two hours and SVT did not recur. Oral digoxin was given for 3 months. The patient who is now 2 years old has been followed up during this period and no SVT attack was observed.

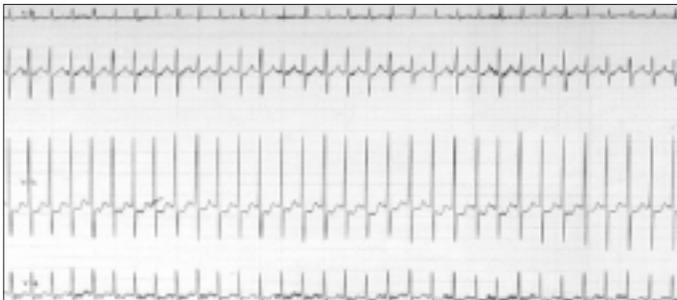


Figure 1. Electrocardiography of the patient (during attack of supraventricular tachycardia). Findings of the electrocardiography: heart rate 300 beats/min, QRS axis + 90°, narrow QRS (< 0.08 sec), absence of P wave, nonspecific ST segment and T wave changes

Respiratory syncytial virus is the most important viral pathogen which is responsible for lower respiratory infections both in neonates and infants (1). Cardiac arrhythmias including ventricular arrhythmia (1), supraventricular tachycardia (2-5) and heart block of various degree (2-4) are uncommon complications of RSV infection. The virus may lead to arrhythmias in which mechanisms are unclear (1). It has been suggested that these arrhythmias are related to myocarditis or pericarditis. Endomyocardial biopsy is the standard for diagnosis myocarditis although myocardial infiltration on histology with RSV has been rarely demonstrated (1,3,4). The possibility that the cardiac arrhythmias may have been caused by one of the cardiotropic viruses infecting the child at the same time as RSV has also been reported (5). β -agonist therapy or hypoxemia may possibly lead to arrhythmic episodes (2). The presentation of our patient suggest that arrhythmia may have been caused by myocardial irritation from adjacent pneumonitis or toxic effects of RSV as suggested by Donnerstein (2).

In conclusion, both paediatricians and neonatologists need to be aware of this rare association of SVT with RSV infections in infants and neonates.

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