EKG Module 3/22/2011

Summary

I. Identification of typical supraventricular tachycardia (Atrioventricular reentrant tachycardia <AVRT> or atrioventricular nodal reentrant tachycardia <AVNRT>)
   a. History
      i. Sudden onset, sudden offset of tachycardia.
   b. EKG findings
      i. Rate (Tachycardic)
      ii. Rhythm 1:1 Relationship of P wave and QRS wave
      iii. > 220 bpm in infants and > 180 in children..
   c. Telemetry
      i. Sudden onset and sudden offset
      ii. Very little variability while in tachycardia
   d. Cardioversion
      i. Good Perfusion
         1. Chemical Conversion with Adenosine
            a. Typical dose is 0.1 mg/kg x1 RAPID BOLUS
            b. Anticipate bronchospasm in asthmatics.
            c. Make sure external cardioversion is available in case the underlying rhythm is not what you expect.
         2. If not successful may
            a. Repeat w/ Adenosine with 0.2 mg/kg IV x1
            b. Try adding adjuvant medications
               i. Esmolol
               ii. Procainamide, Amiodarone, etc. (Call cardiology)
      ii. Poor perfusion
         1. <u>Synchronize Cardioversion</u> with 0.5 J/kg with sandwich technique
            a. Push the SYNC button!!
            b. May double energy if required.
   e. Outpatient management
      i. Infants (Where there is a high likelihood that AVRT will self-resolve
         1. Propranolol
         2. Digoxin (Contraindicated with WPW (Preexcitation)
         3. Flecainide (Requires starting on inpatient telemetry)
         4. Sotolol Requires starting on inpatient telemetry)
         5. Amiodarone (Check TSH, free T4, PFT, skin)
      ii. Adolescents
         1. Medical management can be tried, but ablation in the catheterization can result in definitive treatment without medication.

II. Wolf Parkinson White Syndrome
   a. Characteristics
      i. Short PR interval and Delta Wave
      ii. Indicates an accessory pathway that can conduct anterograde from atria to ventricle
      iii. Setup for accessory pathway mediated reentrant tachycardia (or AVRT)
   b. Associations
      i. WPW with severe cardiomegaly and right atrial enlargement in infancy is pathognomonic for Ebsteins' anomaly

ii. Atrial fibrillation with rapid ventricular response.. An efficient accessory pathway in the setting of atrial fibrillation can result in rapid depolarization of the ventricle, ventricular fibrillation, and sudden death.

III. Ventricular tachycardia

a. Recognize and know how to use PALS algorithm for Tachycardia and pulseless arrest.

b. Treatment for polymorphic ventricular tachycardia (ie. Torsades de pointes)- includes

i. Unsynchronized cardioversion 2J-4J/kg (should never be delayed).

ii. Epinephrine 0.01 mg/kg IV

iii. Magnesium 25-50 mg/kg

iv. Lidocaine 1 mg/kg IV.