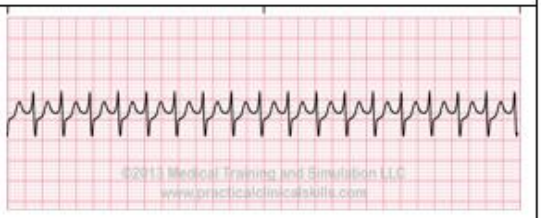
SAN JACINTO COLLEGE

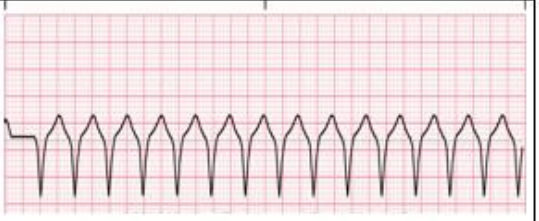
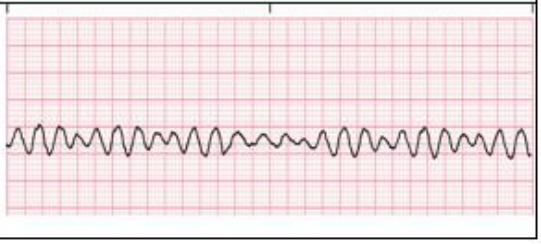
STUDENT SUCCESS CENTER

EKGs: Analyzing a Rhythm Strip

Steps

1. Determine the regularity (rhythm) of the R waves.
2. Calculate the heart rate.
3. Identify and examine P waves.
4. Measure the PR interval. Count the squares from the beginning of the P wave to the beginning of the QRS complex. Multiply by 0.04 seconds. The normal range is 0.12 to 0.20 seconds. Accelerated or shortened PR intervals may be caused by myocardial disease or conduction abnormalities.
5. Measure the QRS complex. Count the number of squares from the beginning of the QRS to its end. Multiply by 0.04 seconds. Normal range is 0.04 to 0.10 seconds.

RHYTHM	SIGNIFICANCE	TREATMENT	EKG
Sinus Bradycardia Rate less than 60. PR constant and normal. Client may be dizzy and disoriented.	Low cardiac output if stroke volume limited.	Atropine, Isuprel	
Sinus Tachycardia Rate more than 100. PR constant and normal. Range 100-159.	Low cardiac output when filling time is inadequate.	Treat basic problem. Verapamil if symptomatic.	
Atrial Tachycardia (same as supraventricular tachycardia) P often hidden. Ventricular rhythm regular. Rate about 200.	Cardiac output may fall. Suggests digitalis toxicity.	Carotid pressure, digitalis, cardioversion, Tensillon, Verapamil, Adenosine.	

RHYTHM	SIGNIFICANCE	TREATMENT	EKG
Atrial Flutter Flutter waves, 300 per minute. Usually 2:1, 3:1, 4:1 or variable A-V conduction.	Often indicates congestive failure. Cardiac output may fall.	Cardioversion, digitalis, Verapamil.	
Atrial Fibrillation Fibrillation waves, 350 to 500 per minute with variable contour.	Atrium quivers-poor contraction. Often indicates CHF. Cardiac output may fall.	Digitalis, cardioversion, Verapamil.	
Ventricular Premature Contractions (or premature ventricular complexes, PVCs) QRS premature, broad, "different" and not preceded by premature P.	Often progresses to vascular tachycardia or fibrillation.	Lidocaine, quinidine, Pronestyl	
Ventricular Tachycardia QRS broad. Ventricular rhythm nearly regular, P unrelated to QRS. Average rate 180.	Often progresses to vascular collapse or ventricular fibrillation.	Lidocaine, quinidine, Pronestyl, cardioversion if a pulse. Defibrillation if no pulse.	
Ventricular Fibrillation No well-defined QRS. Irregular undulations.	No cardiac output. Fatal if untreated.	Precordial shock if witnessed defibrillation.	

RHYTHM	SIGNIFICANCE	TREATMENT	EKG
First Degree A-V Block PR 0.21 seconds or more. Each P conducted.	May progress to complete block. May indicate excess quinidine, Pronestyl, or digitalis.	Observe for more serious degree block.	
Second Degree A-V Block Some P waves not conducted; fixed PR interval for P waves conducted.	May progress to complete block.	Temporary pacemaker; Atropine or Isuprel may help.	
Third Degree A-V Block P unrelated to QRS. Ventricular rate 20-45. QRS narrow or broad.	Low cardiac output. May produce shock, congestive failure, syncope, ventricular arrhythmias.	Permanent pacemaker. Isuprel may speed ventricular rate. Transcutaneous pacemaker temporary until permanent pacemaker can be inserted.	

References

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