

Paramedic – Evidence Based Medicine (P-EBP) Program

Paramedic CAT (Critically Appraised Topic) Worksheet

Title: Adenosine given to WPW patients

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Clinical Scenario: Paramedics arrive to the scene of a 30 year old male patient complaining of palpitations, dizziness and a heart rate of 180 BPM. These symptoms had a sudden onset 10 minutes prior to EMS arrival. The patient explains he has a history of Wolf Parkinson's White and has had similar episodes in the past, however he usually has successfully converted himself using Valsalva's technique. Assessment reveals that the patient at this time appears to be hemodynamically stable with a BP of 118/90 and GCS 15. Knowing the risk of pre-excitation with accessory pathway in WPW patients, would administration of an AV nodal blocker, such as adenosine, be beneficial in terminating a narrow complex tachycardia?

PICO (Population – Intervention – Comparison – Outcome) Question:

- In patients with known Wolf Parkinson's White would adenosine treatment result in conversion without adverse events in stable narrow complex tachycardic rhythms?

Search Strategy: (WPW or Wolf-Parkinsons White or Wolf Parkinson's White) and (Adenosine) and (SVT or PSVT or Supraventricular Tachycardia or AVRT or tachycardia)

Search Outcome: 1107

Relevant Papers:

Author, Date	Population: Sample characteristics	Design (LOE)	Outcomes	Results	strengths/ Weaknesses
R. Nagappan, 2002	Female patient presenting to ER with headache, nausea and chest pain. No previous Hx. Initial	Case report involving one female patient	Conversion and adverse events	Patient administered adenosine with an undiagnosed WPW syndrome and transitioned into ventricular arrhythmias followed by cardiac arrest.	- single patient case report, very weak data. + Detailed patient



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	assessment revealed precordial chest discomfort radiating to her left arm, tachycardia @ 168bpm and BP of 128/78. ECG revealing narrow complex tachycardia.	LOE III			<p>treatment and responses to said treatments</p> <p>+ multiples ECGs captured during interventions</p> <p>– single pt case study does not provide any true research behind the PICO.</p>
S. Drecher, 2000	Female pregnant patient in an atrioventricular nodal re-entrant tachycardia treated with intravenous adenosine.	<p>Case report involving single patient</p> <p>LOE III</p>	Conversion and adverse events.	<p>Patient experienced post adenosine atrial fibrillation with a rapid ventricular response. However no hemodynamic compromise was noted and patient successfully self converted back to a normal sinus rhythm on her own shortly after.-</p> <p>White syndrome cannot be excluded.</p>	<p>– single case report involving only one patient and one outcome/intervention, very weak.</p> <p>+ Clearly outlines the presenting complaint and initial rhythm followed by post intervention assessment.</p> <p>– Does not support the PICO due to weak data.</p> <p>– Inconclusive as it states the treatment is acceptable however should be “taken into consideration”</p>

Comments:

- articles found did not support the PICO
- documented cases suggesting opposite findings



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- articles used provide inconclusive data towards the PICO
- since very few articles were found there is not enough data to support for or against the proposed intervention within the pico.

Consider: *Why would you NOT change practice, based on this article?*

Due to the inconclusive data within the search regarding the PICO there is not enough supportive evidence to change general practice based on these articles. Very weak data involving only two case studies does not provide any clinical significance within the intervention. Also both clinical presentations seem to stress a caution regarding said intervention however it appears to still be acceptable as long as clinicians are prepared for the possibility and have other treatment methods close by for more lethal arrhythmia post intervention.

Clinical Bottom Line:

Although the presented case studies within the two articles were interesting and knowledgeable within the varying treatment methods for tachycardia with WPW patients, there is not enough data to support for or against the proposed PICO based of two weak case studies.

References:

R. Nagappan., S. Arora., C. Winter. Potential Dangers of the Valsalva Maneuver and Adenosine in Paraxysmal Supraventricular Tachycardia- Beware Preexcitation, *Critical Care and Resuscitation 2002; 4: 107-111*

S. Drecher., RF. Bosch., C. Mewis., V. Kuhlkamp. Administration of adenosine for termination of atrioventricular nodal reentry tachycardia: induction of atrial fibrillation with rapid conduction over an accessory pathway and unmasking of concomitant Wolff-Parkinson-White syndrome. [Z Kardiol.](#) 2000 Jun;89(6):522-6