Amiodarone for regular, stable, wide-complex (not necessarily ventricular) tachycardia in the prehospital setting

I read with interest the article by Foerster et al.[1] This retrospective study concluded that amiodarone was safe and moderately effective (more so than previous reports) for termination of stable ventricular tachycardia (VT) in the prehospital setting. The authors appropriately discuss the relevant limitations of the trial's retrospective design and report the lack of formal ECG interpretation. However, the trial defined sustained VT according to Ambulance Victoria Clinical Practice Guidelines: QRS duration greater than 0.12 seconds, mostly regular, rate greater than 100/min with AV dissociation/absence of P waves. The problem with this definition is that when AV dissociation is not evident, the absence of P waves alone is insufficient for VT diagnosis. A regular, wide-QRS complex tachycardia without AV dissociation or P waves may actually be AV nodal reentrant tachycardia (AVNRT) with aberrant conduction (baseline or rate-related bundle branch block). Amiodarone when given intravenously depresses both anterograde AV and retrograde VA conduction and will effectively terminate an AVNRT.[2] Therefore, in Foerster et al,[1] a proportion of the cases that were calculated as VT terminated by amiodarone may have been misdiagnosed AVNRT; this would result in the trial's overestimation of amiodarone's effectiveness for termination of VT.

If the raw data from Foerster et al[1] is available, it would be interesting to examine the VT cases who were initially given adenosine. Adenosine is recommended by current guidelines[3] for regular, wide-QRS complex tachycardia and can be used safely - perhaps more safely than amiodarone considering the risk of amiodarone-related hypotension[4] - as a diagnostic and therapeutic first-line agent.[5] Intravenous adenosine will: 1) terminate a reentrant tachydysrhythmia that involves the AV node, 2) transiently block anterograde AV conduction to help diagnose another supraventricular tachydysrhythmia such as atrial flutter, or 3) have no effect on the rhythm or transiently block retrograde VA conduction to suggest VT. Although developers of prehospital clinical practice guidelines may be wary of adenosine due to its potential misuse in *irregular* wide-complex tachydysrhythmias, the feared degeneration to ventricular fibrillation following AV nodal blockade is likely to be very rare,[6] and electrical therapy can be immediately delivered when needed. If after adenosine, the dysrhythmia persists and stable VT is suspected, paramedics may be directed to simply monitor the patient until hospital arrival or subsequently administer procainamide 10 mg/kg over 20 minutes,[4] particularly in cases of prolonged transport time.

Amiodarone is relatively less effective for stable VT when compared to procainamide,[4] but it will successfully terminate AVNRT with aberrancy. Therefore, amiodarone may be an appropriate first-line drug for prehospital treatment of the more general category of stable, regular wide-QRS complex tachydysrhythmias, just not necessarily ventricular tachycardia.

References

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