

## Comparative evaluation of Wide QRS Interval and R Changes in Avr Lead in Predicting Severe Complications of Tricyclic Antidepressant Poisoning

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### ABSTRACT

**Background:** Tricyclic antidepressants (TCAs) Poisoning is the most common poisoning in the Poisoning Emergency Department of Noor Hospital, Isfahan, Iran. The objective of this study was to compare QRS interval duration with  $RaVR \geq 3mm$  and  $R/SaVR \geq 0.7$  in predicting: serious complications of acute TCA toxicity.

**Methods and Materials:** This study was descriptive – analytic and prospective cohort. TCA poisoned patients (155 cases) were evaluated in the Emergency Department of Noor Hospital, Isfahan. On admission time, ECG and ABGs were done. Data were analyzed by SPSS Software, using t – students and chi- square tests.

**Results:** The ECG results showed that frequency of  $RaVR \geq 3mm$  ,  $R/SaVR \geq 0.7$  ,  $QRS \geq 0.1(s)$  ,  $QT > 0.48(s)$  , Right axis deviation and arrhythmia were 5.2% , 12.9% , 37.4% , 8.38% , 12.4% and 4.5 % respectively. There was a significant relationship between widening of QRS with arrhythmia;  $RaVR \geq 3mm$  with tachycardia and delirium; and  $R/SaVR \geq 0.7$  with delirium, seizure, tachycardia, hypotension and arrhythmia. QRS interval duration (61.5% -85.7%) was found to be a more sensitive indicator of toxicity than the  $R/SaVR \geq 0.7$  (27.1% -30.7%) and  $RaVR > 3mm$  (7.6% -14.2%). The positive predictive values (PPV) of ECG parameters for TCA toxicity for  $R/SaVR \geq 0.7$  (20%) was more than  $RaVR \geq 3mm$  (12.5%) and widening QRS (10.3%).

**Conclusion:** Specific ECG parameters such as  $R/SaVR$ , QRS interval duration and height of the R wave in lead aVR can be useful parameters in assessing and predicting cardiac and CNS complication of TCA toxicity.

**Key words:** Tricyclic Antidepressants, Widening QRS Toxicity,  $RaVR$  Modifications.

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