

QRS MORPHOLOGY CHANGES DEPENDING ON SITE OF VENTRICULAR PACING DURING HIGH RESOLUTION 3D ELECTRO-ANATOMICAL MAPPING IN ADULT HORSES: PRELIMINARY RESULTS

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In human patients, ventricular premature depolarizations (VPDs) originating from different intra-ventricular regions result in distinctive ECG characteristics. The aim of our study is to describe changes in QRS morphology in relation to the site of ventricular ectopy. In 4 horses, under general anesthesia, a mapping catheter (Intellamap Orion, Boston Scientific) was used for ventricular pacing at specific locations in the left and right ventricle. The catheter was guided by 3D electro-anatomical mapping (Rhythmia, Boston Scientific) and transthoracic ultrasound. After placement of the catheter in the right and left apical, high septal and high free wall area, supra-threshold ventricular pacing was performed at a pacing cycle length between 800-1000ms while a modified base-apex ECG (Televet100) was recorded. From this ECG, at sinus rhythm (SR) and at each pacing location, 20 QRS complexes were used for QRS morphology description and measurement of QRS amplitude and duration. Compared to SR, paced QRS complexes had longer duration. A large positive R and small negative s morphology was found at high septal and high right ventricular free wall pacing while apical and high left ventricular free wall pacing resulted in small positive r and large negative S morphology. These preliminary results suggest that typical ECG characteristics from a modified base-apex surface ECG may be helpful to identify the site of ventricular ectopy. These findings might be helpful in future for diagnosis and treatment of complex arrhythmias and development of new treatment strategies.

Keywords: *3D-electro-anatomical mapping, QRS characteristics, ventricular ectopy, echocardiography, electrocardiogram*