

Prone & Supine 12 lead Electrocardiography Comparisons: Utility of the Prone ECG for the Detection of Cardiac Conditions in Patients Requiring Prone Ventilation with COVID-19

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Introduction

Unwell Coronavirus disease (COVID-19) patients are at risk of cardiac complications. Prone ventilation (patient lying on their front) is recommended for respiratory distress but poses practical challenges to obtaining 12 lead ECG. Effects of prone positioning on the ECG remain unknown.

Aims

- 1) To describe expected differences in 12 lead ECG in prone position compared with supine
- 2) To determine usefulness of prone ECG in detecting cardiac problems

Methodology

100 patients were recruited: each had 3 ECGs performed (**Figure 1**)

- supine front (SF)
- prone position with leads attached to front (PF)
- prone position with I leads attached to back in a mirror image to front (PB)

Results

Significant changes in leads V1-3 on PB EKG (**Figure 2**):

- qR morphology: 90% (92% in those with baseline normal ECG)
- T wave polarity change: 84%
- Anterior ischemia: ST changes not visible in 100%
- Bundle Branch Block (BBB) detectable: 100%
 - Left BBB → Right BBB (71%)
 - Right BBB → QRS narrowing with V1 qR morphology

Unaffected by PB position: Limb lead ST/T wave change, arrhythmia detection

Figure 1

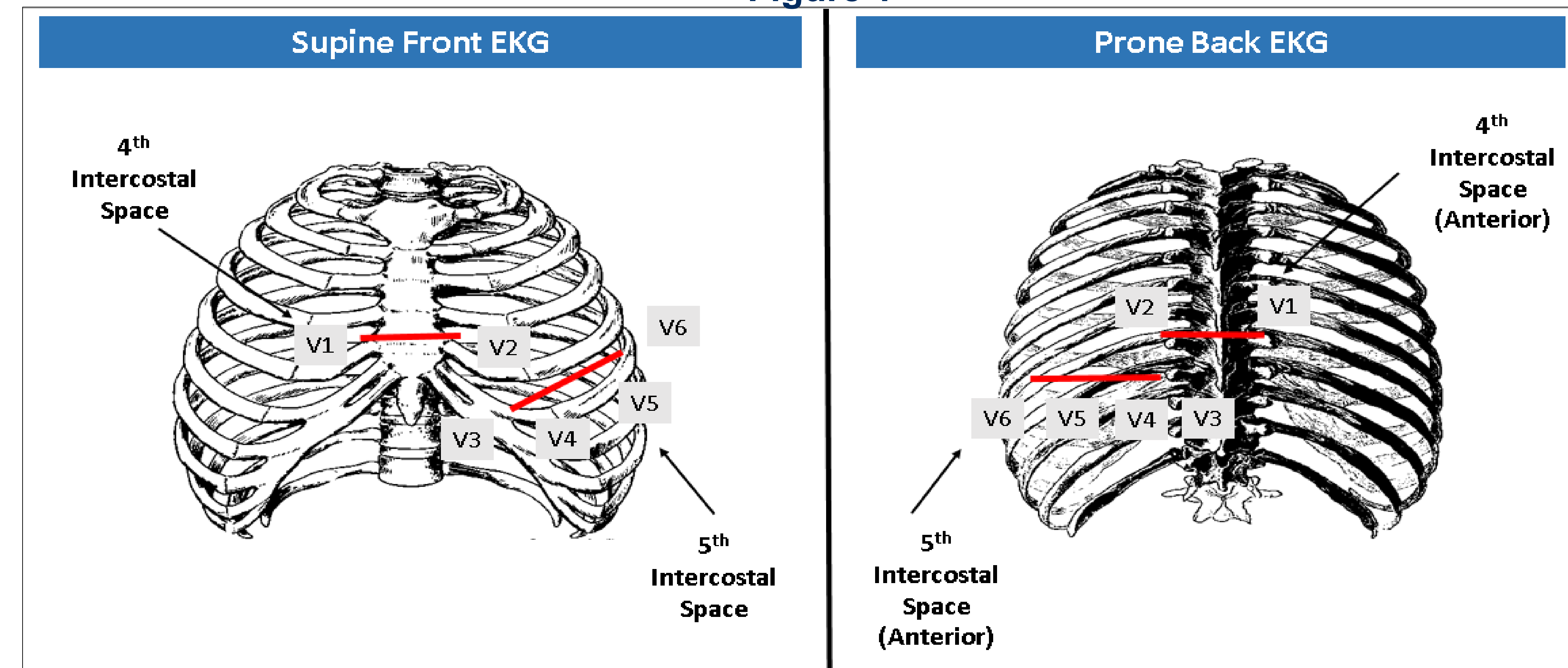
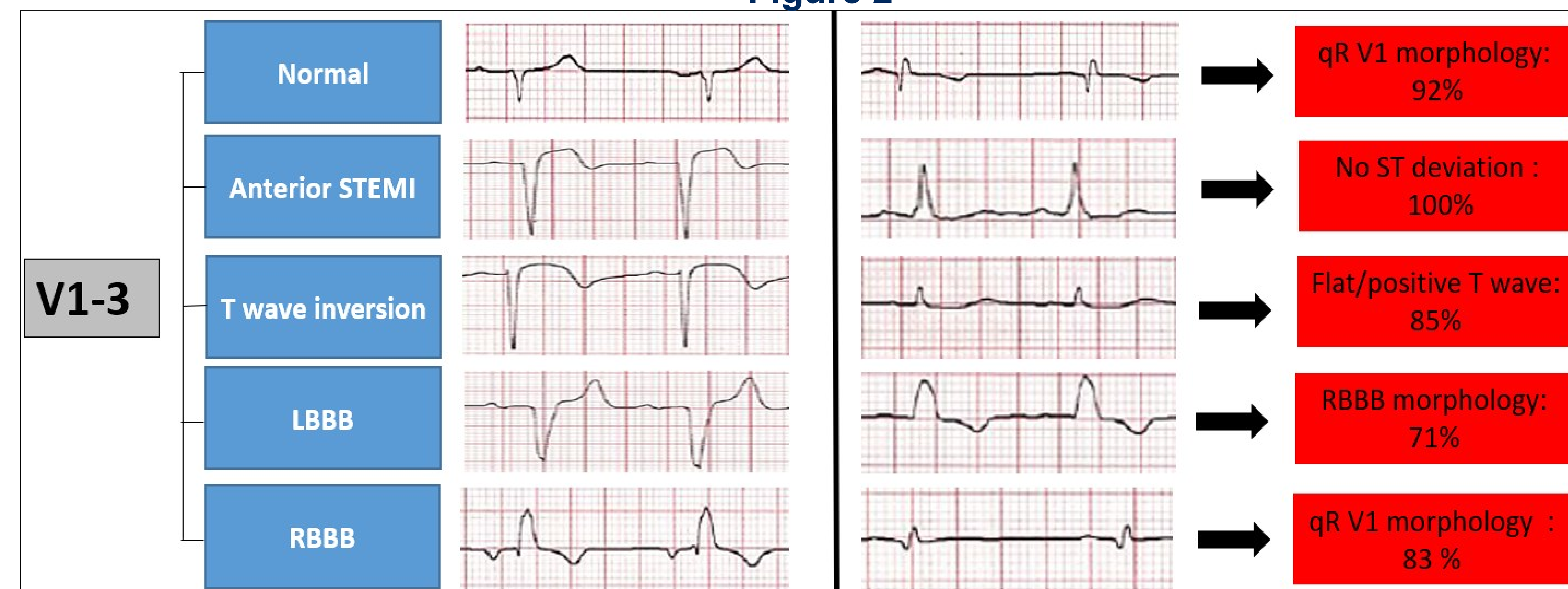


Figure 2



Conclusions

Prone EKG : remains a useful screening tool with diagnostic utility in COVID-19 patients

Prone back EKG :

- Useful for ST / T wave abnormalities in limb leads
- Useful for BBB detection and rhythm monitoring
- Unreliable for detection of anterior myocardial injury