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THE AUTHORS' REPLY

We thank Dr Diz-Díaz and colleagues for the letter reporting a novel method for recording electrocardiograms (ECGs) in patients nursed in a prone position for acute hypoxemic respiratory failure from COVID-19-related acute respiratory distress syndrome. As the COVID-19 pandemic rages on with a surge in hospitalizations following the arrival of the Omicron variant, a large-scale international meta-trial has confirmed the beneficial effects of prone positioning in improving oxygenation and reducing the need for intubation.[1,2]

We previously reported "Prone and Supine 12-Lead ECG Comparisons: Implications for Cardiac Assessment During Prone Ventilation for COVID-19" in the *Journal*. We described the diagnostic utility of the prone back ECG, with the precordial leads V_1-V_6 placed on the back of a prone-positioned patient in an exact mirror-image position to the precordium (V_1p-V_6p).[3] The prone back ECG was reliable for the detection of ST-segment/T-wave abnormalities in limb leads, and identification of bundle branch block and rhythm monitoring but was not useful for the detection of anterior myocardial injury. We congratulate Dr Diz-Díaz and colleagues for investigating the placement of these precordial leads on the corresponding antipodal locations on patients' backs to obtain a mirror-image ECG.[4] The positions of these leads (M1-M6) extend up diagonally from the left scapular line at the fifth intercostal space to the right anterior axillary fold at the second intercostal space. The recorded "mirror" 12-lead ECG showed lower amplitude with inverted QRS/T-wave morphologies in M1-M6 compared with the standard V_1-V_6 precordial leads.[4]

The proposed mirror lead (M1-M3) positions are unlikely to overcome the challenges in interpreting anterior wall motion abnormalities. We hypothesize that differences in the ST and T-wave between the supine and prone positions in leads V_1-V_3 are explained by the change in position of the ECG leads in relation to the wavefront vector for depolarization (ST-segment) and repolarization (T-wave). In addition, the heart is in a more ventral position in the prone position, coupled with increased muscle and bone between the heart and the prone ECG leads. We certainly look forward to seeing the outcomes of this novel prone ECG recording technique in a larger patient population with a range of cardiac pathologies, including anterior myocardial injury.

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