

Sensing using Neutrophil Activation Probe on the Intensive Therapy Unit

SNAP-IT

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SNAP-IT Summary of Results

The SNAP-IT study was designed to investigate the utility of a novel test of lung inflammation to be used in the intensive care unit (ICU) to help predict the likelihood of lungs getting better or worse whilst on a ventilator. The study involved spraying tiny doses (micro doses) of a fluorescent chemical smart probe NAP (neutrophil Activation Probe) directly into the deep areas of the lungs during a bronchoscopy on mechanically ventilated patients. This probe lights up upon contact with a specific type of inflammatory cell.

Our initial goal was to enrol 75 participants into the study but unfortunately, the study ended early due to the global COVID-19 pandemic. We successfully performed the procedure on 11 participants. In the absence of a true reference standard for neutrophilic inflammation in the alveolar space, the primary objective of the study was to determine the reliability of NAP signal during multiple



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transbronchial passes of the same segment in the same patient. Amongst 11 patients of a planned 75 patient study, the intra class correlation test re test statistic was 0.7354 [95% CI 0.5209,0.8134]. This statistic indicates moderate to good reliability, but caution is needed due to the small sample size.

The intention was to publish results in scientific journals and at appropriate conferences. Due to the global pandemic and early termination of the study, this will not be possible. However, there is significant learning in using the smart probe, methods of administration and integration into clinical workflows from this study. Experience gained during the SNAP-IT study has informed study design for future clinical investigations.