

#129 Alexander Chee

Advisor(s): Dennis Dimaculangan

Outcomes of “early” proactive versus “late” rescue therapy intubations of COVID-19 patients with pneumonia at University Hospital of Brooklyn, March to May, 2020: a retrospective cohort study

SUNY Downstate Health Sciences University, designated as one of three COVID-only hospitals in New York City on March 31st, 2020, was faced with a surge of admissions of SARS-CoV-2 infected patients. The anesthesiology department had the task of providing emergency airway management services to admitted patients in respiratory failure. Two different intubation strategies were used at the time—“early” (proactive treatment) and “late” (rescue therapy) intubation. There are currently conflicting recommendations as to whether an early or late intubation approach allows for better outcomes in COVID-19 patients. We proposed there is no difference in mortality and morbidity between “early” versus “late” intubation in COVID-19 patients.

Methods: We conducted a retrospective observational cohort study in patients intubated by the anesthesiology department from March 1st to May 30th, 2020, with a positive polymerase chain reaction (PCR) test for SARS-CoV-2. Patients were classified into two groups according to their PaO₂/FiO₂ (P/F) ratio immediately before intubation: intubated “early” (P/F ratio \geq 300) and intubated “late” (P/F ratio $<$ 300) [3]. The primary outcome was the mortality rate between the groups. We also compared hospital length of stay, days spent on mechanical ventilation and related complications.

Results: Of 138 patients intubated by the anesthesiology department, 12 had P/F ratios \geq 300 mmHg (“early” intubation) and 126 had P/F ratios $<$ 300 mmHg (“late” intubation). Mortality was significantly lower in the early intubation group, 7 of 12 patients (58%), compared with the late intubation group, 110 of 126 patients (87%), ($p=0.0197$ Fisher's exact test).

Conclusion: COVID-19 patients intubated with P/F ratios $<$ 300 mmHg had a higher mortality rate than those intubated with P/F ratios \geq 300 mmHg. An early proactive intubation strategy for COVID-19 patients in respiratory distress is recommended should there be a future resurgence of cases.

Additional contributors to this project:

Dennis P. Dimaculangan, M.D.

Laura M. Rodriguez Valencia, M.D.

Wilson Mar, M.D.

Alexander Chee, B.A.

Tzu-Hsuan Cheng, M.D.

Nelson Nwannunu, B.S.

Adam Abin, M.S.

Adiell Melamed, B.S.

Natalie Sun, B.S.

Trudy Johnson, R.R.T.

Jaewoo Shin, B.A.

Samrat Worah, M