

EVALUATION OF THE NEOTEE T-PIECE INFANT RESUSCITATOR.

Carl R. Hinkson¹, Cynthia White², Thomas A. Barnes³, Rob DiBlasi⁴;
¹Respiratory Care Department, Harborview Medical Center, Seattle, WA;
²Respiratory Care Department, Cincinnati Children's Hospital Medical Center, Cincinnati, OH; ³College of Professional Studies, Northeastern University, Boston, MA; ⁴Respiratory Care Department, Seattle Childrens Hospital, Seattle, WA

INTRODUCTION: The NeoTee is a novel manually-cycled, pressure-limited, and flow powered infant resuscitator that allows clinicians to adjust preset pressures and inhalation occurs when the operator occludes a restrictor valve. We hypothesized that there would be no differences between preset pressures on the NeoTee and those measured in a test lung following changes in PIP, PEEP, flow, and frequency with the NeoTee resuscitator. **METHODS:** An Ingmar ASL-5000 test lung (C:2, R:50) was attached to a NeoTee. The operator manually ventilated the lung model for two minutes with: 1) Pressure (PIP/PEEP) 10/5; 20/5, 40/5; 2) flow (L/min) 5, 10, 15; 3) rate (f/min) 20, 40, 60 and 4) different flow/PEEP combinations. Each test was repeated in triplicate using new NeoTee resuscitators (n=3). Pressures observed on the NeoTee were recorded in a lab notebook and lung model pressures were stored in the ASL software. Wilcoxin signed-ranks test, Kruskal-Wallis H test and Spearman correlation were used to compare differences between pressures. **RESULTS:** Changing flow from 5, 10, 15 L/min on the NeoTee had no effect on the PIP (P = .71) or PEEP (P = .31) delivered to the test lung. There were significant differences between set PIP and PEEP on the NeoTee manometer and PIP and PEEP delivered to the lung model but there was good correlation between the set and delivered pressures (PIP: P = .000, [rs: 0.76 r2 0.58] ; PEEP: P = .01, [rs: 0.74 r2 0.55]). Changing the ventilatory rate from 20, 40, 60 had no effect on the PIP delivered to the lung model (rs -.03. r2 -.09); however, when NeoTee was operated at 60 min the lung model PEEP was -1.81 cm H2O greater than the preset value. **CONCLUSIONS:** Based on these data, the NeoTee manual resuscitator operated within a clinically acceptable range for the majority of testing and well within the manufacturer's specifications for all testing conditions. We recommend operating the gas flow >5 L/min and frequently observing airway pressure measurements during resuscitation.

Sponsored Research - Devices were provided by Mercury Medical, Inc.

1430971