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Title: A survey on the use in clinical practice of noninvasive positive pressure ventilation (NPPV) as a first-line intervention for acute respiratory distress syndrome (ARDS)

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Body: BACKGROUND: Few studies have investigated non-invasive positive pressure ventilation (NPPV) in acute respiratory distress syndrome (ARDS). OBJECTIVE: To investigate variables predictive of NPPV success and prognosis factor in patients with ARDS. DESIGN: prospective, three hospitals cohort study. METHOD: Predictive factor of NPPV success were analyzed with logistic regression. Prognostic factor in patients with ARDS analyzed with Cox proportional hazard model. Prognostic factor of NPPV was examined using with Cox proportional model (CPHM). Two models were examined. Namely Model1: all prognostic factors were time-independent factors Model2: Respiratory care was time-dependent factor and others were time-independent factors RESULTS: NPPV failed in 51% (19/37) of patients. Stepwise analysis identified arterial pH (OR 1.94, 95% CI 1.21-3.11) and respiratory rate (OR 0.86, 95% CI 0.78-0.96). Stepwise analysis in model 1 indentified arterial pH(0.1unit) (HR 5.96, 95%CI 2.03-17.5) a simplified acute physiologic score (SAPS II) (HR 1.15 95%CI 1.05-1.26) and arterial pCO₂ (HR1.10 95%CI 1.01-1.21). However the interaction between pCO₂ and arterial pH are significant at 0.05 level. Stepwise analysis in model 2 indentified respiratory care (HR 5.44 95%CI 1.19-24.9), arterial pH(0.1 unit) (HR 3.04 95%CI 1.19-7.81),and SAPS II(HR1.12 95%CI 1.03-1.22). There is no interaction of these factors. CONCLUSION: Time-dependents covariates are useful for examining the prognostic factors of ARDS. We decide prognostic factors of ARDS in first-line NPPV are SAPS II and arterial pH.