Background and Aims: High-flow nasal cannula (HFNC) oxygen therapy comprises an air/oxygen blender, an active humidifier, a single heated circuit, and a nasal cannula. It reduces anatomical dead space, PEEP effect, constant fraction of inspired oxygen, and good humidification. While there have been no big randomized clinical trials comparing reintubation rate in HFNC and conventional oxygen therapy.

Methods: We identified and collected randomized controlled trials (RCTs) which reported the use of HFNC and conventional oxygen therapy with reintubation rate from 2009 Jan. to 2017 Dec. in Cochrane Library, PubMed and Clinical Key. We used the keywords of High flow nasal cannula, oxygen therapy and post-extubation. According to risk level to evaluate the validity of studies and so as to Review Manager 5.3 to calculate for risk ratio, mean and standard deviation.

Results: There were 5 RCTs trials with 1117 patients were included to our systematic review. First, HFNC group was associated with decrease the rate of overall reintubation (RR = 1.09, 95% CI = 1.05–1.14, P = .45), compared with conventional oxygenation therapy. Second, HFNC group was associated with decrease the rate of overall hypoxemia (RR = 1.36, 95% CI = 0.92–2.00, P = .16) and decrease the rate of overall mortality (RR = 1.19, 95% CI = 0.67–2.11, P = .89).

Conclusion: Using high flow nasal cannula compare with general oxygen treatment equipment after extubation, which can signicantly reduce overall reintubation rate, mortality rate and improve oxygenation.

Environmental & Occupational Health and Epidemiology 1

PARTICULATE MATTER INCREASES EOSINOPHILIC AIRWAY INFLAMMATION

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Background and Aims: Particulate matter is increasing every year in Asia. And outdoor activities are increasingly difficult and quality of life is diminishing from particulate matter. It is not fully understood how the airway is affected when inhaling particulate matter. We investigated the correlation between particulate matter and fractional exhaled nitric oxide to determine whether particulate matter causes eosinophilic airway inflammation.

Methods: We analyzed fractional exhaled nitric oxide results from January 2016 to December 2017 at the Korea University Guro Hospital. Particulate matter data were provided by the government of the Republic of South Korea. We analyzed the correlation between particulate matter and fractional exhaled nitric oxide by a Pearson correlation analysis and by a multivariate linear regression analysis. To identify the most correlated times, we analyzed the correlation between the fractional exhaled nitric oxide and particulate matter daily average from the day of visit to 4 days before visit.

Results: Fractional exhaled nitric oxide positively correlated with particulate matter at two days before hospital visit in the Pearson correlation (Pearson correlation coefficient = 0.057; P-value = 0.023) and in the multivariate linear regression analysis (B = 0.062, P-value = 0.028). If the particulate matter increased by 100, the fractional exhaled nitric oxide value was expected to rise to 6.2 ppb.

Conclusion: There was a positive correlation between particulate matter and fractional exhaled nitric oxide. The positive correlation was