Oral Abstracts

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ANTIOXIDANT THERAPY ON PARAQUAT INDUCED PULMONARY INJURY; QUANTIFIED WITH HUMAN CLARA CELL PROTEIN ELISA

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Objectives: The major cause of death in paraquat (PQ) poisoning is respiratory failure due to an oxidative insult to the alveolar epithelium. There is no proven effective treatment for PQ poisoning. Therefore we aimed to see whether antioxidant therapy would improve PQ induced lung injury, quantified by Human Clara Cell Protein (HCC) ELISA

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Methods: Patients admitted following acute PQ ingestion were recruited to the treatment group of the study and randomized in to two arms. One arm was treated with intravenous vitamin C (vitC)+N-acetylcysteine (NAC) and the other was treated with vitC+placebo. The dose of vitC was 100, 500, 1000, 3000mg/day and 3000mg/8h for five consecutive days. The NAC dose was 20mg/kg followed by 50mg/kg twice per day for three days. The placebo was 5% dextrose administered twice per day for three days. The treatment group was compared to controls who received standard supportive treatment. HCC was used as lung biomarker to determine lung injury.
Mann-Whitney U test was used to compare the groups and Log Rank and Tarone-ware tests were used to analyze the survival function.

Results: The mean (SD) ages of the treatment (n=40) and controls (n=80) were 33(17) and 36(16) years. The median survival time of the patients in the treatment and control groups were eight days (95%CI 1.8-14.2) and 10 days (95%CI 3.0-16.9). The median survival time of the patients given VitC+placebo and Vit C+NAC was seven days (95%CI 0-20) and eight days (95%CI 2–14) respectively. The median (IQR) PQ level at 12 hours of ingestion in the treatment and control groups were 5.0(10.8) and 9.1(15.7)µg/mL (P=0.3). Plasma HCC concentration of treatment group was lower than that of the controls over five consecutive days (except day four). Statistically significant difference in HCC was observed in day one (treatment group 8.5(4.5-11.8)€ng/mL vs controls 15.3(7.1-27.4)€ng/mL;P=0.02) and day two (treatment group 8.2(25-10.5)€ng/mL vs controls 12.1(8.7-25.4)€ng/mL;P=0.006). Comparison of two arms in the treatment group showed higher levels of HCC in the patients who received VitC+NAC than that of the patients who received VitC+placebo. Statistically significant higher levels of HCC was detected in the patients who received VitC+NAC on day four (VitC+NAC arm 26(12.5-67.5)€ng/mL vs VitC+placebo arm 7.4(4.8-22.2)€ng/mL;P=0.02) and day five (VitC+NAC arm 25(5.6-28.4)€ng/mL vs VitC+placebo arm 3.2(2.8-6.4)€ng/mL;P=0.02).

Conclusion: Intravenous VitC therapy showed promising effect on lung injury induced by PQ. Addition of NAC causes harm than the benefit.

€ Values are median (IQR)