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To compare effectiveness of intensive resin hemoperfusion with usual resin hemoperfusion on the treatment of acute Paraquat poisoning

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Objective: Acute paraquat poisoning is common at Poison Control Center, Bach Mai hospital with high mortality, approximately 72% without hemoperfusion. Resin hemoperfusion can help to decrease mortality. The objective of this study is to compare effectiveness of intensive resin hemoperfusion with usual resin hemoperfusion in the treatment of acute paraquat poisoning.

Methods: This is a prospective observational study using historical controls. The study group included 66 patients admitted between 1/2014 and 10/2015. The historical control group included 66 patients admitted between 7/2012 and 10/2013. Both groups were treated by standard treatments (methylprednisolone, cyclophosphamide and other detoxifications) in combination with hemoperfusion: the study group with intensive regimen; control group with the usual regimen. Inclusion criteria were: (1) patients drank paraquat, (2) positive paraquat in urine. Exclusion criteria: (1) hemoperfusion contraindicated: PaO_2 < 60 mmHg, SpO_2 < 88%.

Results: The mean age of study group was 30.4±13.09 (13-78 years) was not different to the control group 26.7±9.74 (14-57 years), p=0.74. Urine paraquat concentration on admission of study group was 76.1±42.55 (0.2-100µg/mL), and control group 68.2±41.27 (0.5-100 µg/mL), p=0.304. Time from drinking paraquat to the first resin hemoperfusion procedure of study group was 10.6±7.70 (4-53 hrs), which was shorter than the control group 16.9±17.56 (5-111 hrs), p=0.009. The study group had 4.02 ± 1.32 (2-9) rounds of haemoperfusion, which was more than control group: 2.86 ± 1.05 (2-7 rounds), p< 0.001. Three months post discharge the mortality was 30/66 (45.5%, study group) which was not significantly different to 36/66 (54.5%, control group), p=1. The mortality of the subgroup with urine paraquat concentration above 40 µg/mL in study group was 27/50 (54%), lower than that in control group 33/41 (80.5%), p=0.008.

Conclusion: Intensive resin hemoperfusion was more effective than usual resin hemoperfusion in decreasing mortality of acute paraquat poisoning in patients with a urine paraquat concentration above 40 µg/mL.