Clinical Reference for Adsorption therapy

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Good biocompatibility and non-cytotoxicity of Jafron HA series products is unveiled recently.

HA130, HA230, and HA330 are among the widely used adsorption cartridges in China, with **sufficient body of evidence to support their safety and effectiveness in the field of inflammatory conditions, chronic uremic symptoms and intoxication** as we reviewed in this paper.

Blood Purification

A New Series of Sorbent Devices for Multiple Clinical Purposes: Current Evidence and Future Directions

HA130

2-4 times HA130 treatment / month

- ***Significantly remove uremic toxins***
- ***Improve patients' life quality***
- ***benefit patients' survival rate***

	Chen et al. [14], 2011	Li et al. [13], 2017
Study design	Prospective RCT	Observational
Study population, *n*	100 CHD patients followed for total of 2 years	90 CHD patients with a diagnosis of uremic pruritis
Prescribed dose	2 groups: HD alone vs HD+ HA130-HP (1 HP session weekly)	3 groups: control group (RHD alone), experiment 1 group (RHD + HA130-HP), and experiment 2 group (RHD + HA330-HP). HP in experiment 1 and 2 groups: once every 2 weeks for 2.5 h
Results	Significant improvement in the HP group compared to the control group in: – SBP, DBP, types of antihypertensive drugs, ($p < 0.05$) – HR, cardiothoracic ratio, LVMI, ($p < 0.05$), and EF ($p < 0.01$) – EPO dose, ($p < 0.05$) – HB level, ($p < 0.01$) Reduction in leptin, hsCRP, iPTH, IL-6, β2-MG, TNF-α serum levels in the HP group, compared to a rise in the control group. Significant improvement in the quality-of-life score (SF-36) in the HP group compared to the control group ($p < 0.05$). Significant reduction in 2-year mortality rate in the HP group compared to the control group (12.77 vs. 31.82%, $p < 0.01$)	Significant improvement in experiment 1 and 2 groups compared to the control group in: – Pruritus scores (VAS score, modified Duo scores; $p < 0.05$) – Parathyroid hormone and calcium phosphate product ($p < 0.05$)

Dosage & Benefits

JaFron

HA330

Once HA330 treatment / day for three consecutive days

- ***Improve patients hemodynamic,***
- ***Reduce the inflammatory mediators***
- ***Increase patients' survival rate***

Study design	RCT	RCT
Study population, *n*	44 sepsis or septic shock patients	46 ALI/extra-pulmonary sepsis patients
Prescribed dose	HP for 2 h for 3 days	HP for 2 h for 3 days
Survival	– ICU mortality 12.5% in HA vs. 45.0% in the controls ($p = 0.02$) – Hospital mortality 37.5% in HA vs. 50.0% in the controls ($p = 0.81$) – 28-Day mortality 45.8% in HA vs. 55.0% in controls ($p = 0.47$)	– ICU mortality 24% in HA vs 57.14 % in the controls ($p = 0.02$) – 28-Day mortality 28% in HA vs 66.7% in the controls ($p = 0.009$)
Length of ICU stay, days	12.4 ± 3.1 in HA vs. 19.5 ± 4.0 in controls ($p = 0.03$)	15.5 ± 4.0 in HA vs. 19.4 ± 3.1 in controls ($p = 0.04$)
Hemodynamics	Significant reduction in VP dose in the HA group vs increase in the control group ($p = 0.01$)	Significant reduction in VP dose in the HA group vs increase in the control group ($p = 0.032$)
Other results	Significant difference in IL-8 and IL-6 levels between the 2 groups at day 3 ($p = 0.03$, 0.01, respectively)	Significant difference in IL-1 and TNF-a in BAL fluid between the 2 groups ($p = 0.02$, 0.04, respectively)

HA230

2 hrs HA230 treatment

- ***Obviously clear paraquat and organophosphate***
- ***Prevent and relieve the complications***
- ***Improve patients' survival rate***

Study design	Observational	RCT	Retrospective, observational
Study population, *n*	85 patients with acute PQ intoxication	36 patients with ASOP	68 patients with ASOP
Prescribed dose	HP for 2 h (6 patients had repeated HP)	3–4 HP ($n = 20$) vs. 1 HP ($n = 16$)	ST + HD + HP ($n = 34$) vs. ST alone ($n = 34$)
Results	– HP was more effective in lowering PQ level in patients with higher initial concentration (clearance <40% in patients with initial PQ level of <200 ng/mL vs. >40% in patients with initial level of >300 ng/mL [$p < 0.05$]) – PQ clearance is the highest within the first hour of therapy – Rebound rates are widely variable (27.56–69.80%)	Repeated HP vs single HP resulted in (all $p < 0.05$): – Less atropine use – Shorter time to coma recovery – Shorter time until normalization of cholinesterase levels – Lower rate of myasthenia syndrome – Higher survival rates	Significant improvement in the treatment group vs the control group (all $p < 0.05$) in: – Rescue success rate (97.06 vs. 82.35%) – Mortality (2.94 vs. 17.65%). – Atropinization time, recovery time of cholinesterase activity – Length of hospital stay (11.2 ± 1.4 vs. 18.3 ± 3.5 days) – Poisoning rebound rate (2.94 vs. 11.76%)

Technical Aspects of HA130, HA230, HA330

	HA130	HA230	HA330
Indications	Chronic dialysis complications	Intoxication	Acute conditions with cytokines storm such as sepsis
Molecular weight removed	5-30kDa	500Da-10kDa	10-60kDa
Resin pore size distribution	500Da-40kDa	200Da-10kDa	500Da-60kDa
Toxins removed	Middle uremic toxins Protein-bound uremic toxins	Hydrophobic or protein-bound exogenous substances	Cytokines, complement, free hemoglobin, etc.