Evaluating the Efficacy & Safety of Extracorporeal Cytokine Adsorption in Treating Cytokine Storm COVID-19 Patients

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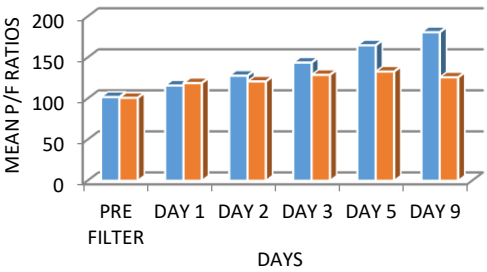
Background: Cytokine storm is associated with Covid-19 severity and is also a crucial cause of death from Covid-19.

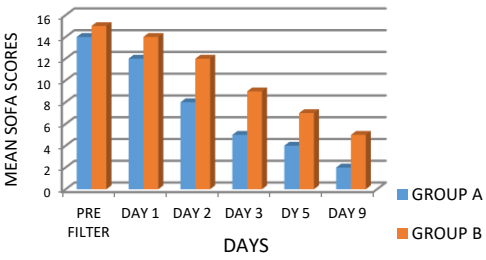
Oejective: Evaluating whether HA330 hemoperfusion benefits in the improvement of oxygenation, MODS, SOFA scores, early escape from mechanical ventilation, decrease number of ventilatory days and mortality.

Methods: Retrospective, interventional, open label study included a total of 52 patients, age 18-75yrs, with moderate and severe ARDS from covid-19 pneumonia with following criteria, IL -6 > 100 pg/ml, (N range= <0.5 ng/ml) , Ferritin >500ng/mL; (N range= 30-400 ng/ml) , CRP) >70mg/L; (N< 0.6 mg/dl), D-Dimer >1000ng/mL; (N< 243 NG/ML), P/F ratio < 150 on >70 fio2 for more than 24 hrs
. The patients divided into 2 groups, group A (HA330 group), n= 26 patients, who received 3 sessions of HA330 hemoperfusion + regular standard of care, group B, n =26 patients, who received regular standard of care.

Results:

- Significant improvement in oxygenation in HA330 group, aiding in rapid decrease in FIO2 requirement with respect to regular standard of care.
- SOFA score and organ dysfunction improved; decreased the vasopressor use, RRT, ICU costs, early removal of invasive lines and thus decreased the clabsi rates.





- Significant decrease in the cytokine storm marked by a massive drop of pro-inflammatory markers in the HA330 group.

Mean of cytokine markers	PRE HP		DAY 1		DAY 2		DAY 3		DAY 5		DAY 9	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
IL6	593±6.77	563±7.45	304±7.93	686±8.67	237±9.65	408±9.44	98±6.54	266±9.34	69±5.78	95±8.56	32±7.45	77±9.65
CRP	12±3.12	12.8±8.45	10±4.87	14.4±7.90	6±2.09	10±3.14	5± 2.87	7.8±2.62	3.2±1.33	5.6±8.67	2.4±1.45	4.2±8.87
Ferritin	1500±9.88	1500±6.89	1432±9.43	1500±9.78	1083±8.67	1456±8.66	965±7.94	1327±7.98	845±8.44	1209±9.87	431±6.35	945±8.89
D-dimers	7894±9.88	7990±7.56	5698±8.99	6867±7.89	4090±9.67	5463±8.09	3398±8.68	4101±6.54	1098±7.98	2435±7.14	845±8.45	1008±5.78

- However; secondary bacteraemia, VAP, pulmonary embolism, pneumothorax, pneumomediastinum from the severe ARDS and stiff lung, caused delay in weaning from mechanical ventilator and thus did not decrease the length of ICU stay and all cause mortality.

Conclusion: Early use of HA330 showed a significant difference from the regular standard of care to combat life threatening and refractory hypoxemia, profound cytokine storm, MODS and preventing from initiating costly and cumbersome therapies like ecmo and saving ICU costs significantly.