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EFFECTS OF HEMOCONCENTRATION DURING CARDIOPULMONARY BYPASS ON RENAL FUNCTION POST-OPERATIVELY

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Currently, the use of hemoconcentration is clinician/perfusionist dependent. However, there should be algorithm established for appropriate application for types of patients and clinical situations during the surgery. The perfusionist should assess the clinical condition pre-operatively by looking at BUN and creatinine, being aware of any edema, and other indicators such as diabetes and kidney failure. Throughout the surgery, perfusionists should be aware of urine output as that too is indicative of renal function. It is observed that patients received large amounts of hemoconcentration exceeding the amount of cardioplegia given, showed a slower rate of return to normal renal function. This will impact the morbidity rate resulting from prolong recovery time. The purpose of this study is to analyze the methods of hemoconcentration and the impact on renal function by data collection of BUN and creatinine levels.

This is a retrospective study being done by collecting data on amount of cardioplegia given, amount of hemoconcentration throughout the case, post-operative BUN and creatinine levels in the post-operative period until the patient is discharged. At a single center where hemoconcentration is utilized on every case, the amount of ultrafiltrate varied and was case and patient dependent. Hemoconcentration amounts were dependent on the amount of cardioplegia given, patient's renal function, blood volume in the reservoir and hematocrit. This study focuses on the percentage of hemoconcentration compared to cardioplegia given and analyzed the post-operative BUN and creatinine levels.

The result of this study may impact the hemoconcentration techniques relative to kidney function affected by the amount of ultrafiltration rate and the appropriate amount during certain time frame of CPB. Preliminary data indicate that hemoconcentration should not be done continuously throughout the entirety of the case. By doing appropriate proportions, the patient's renal function may be more viable, and may decrease the levels of BUN and creatinine post-operatively.