

Correspondence

Modified Ultrafiltration (MUF)

Dear Sirs:

It was very interesting to read the technique article from Duke University Medical Center regarding MUF (Modified Ultrafiltration in Pediatric Cardiopulmonary Bypass. *J Extra-Corpor Technol.* 26(4):205-209.). Since its inception in our hospital some six years ago by Martin Elliott and Surin Naik, we have now performed approximately 2000 plus cases; we have yet to find a patient who has been unsuitable for this technique.

It was encouraging to see that the results from Duke follow ours so closely, and that they have mastered the system. We would also like to pass on some of our observations and suggestions:

1. We routinely use a vacuum level of -200 mmHg across the filter. This helps to reduce the time that is required for MUF.
2. Occasionally air has been observed being ejected from the heart, post-bypass. By having the take-off point for the MUF at the top of a loop about 3 to 4 inches away from the cannula, this air is sucked away down the filter line, which can then be diverted via a recirculation line to the venous reservoir.
3. We also have encountered the problem of temperature drop during MUF, especially in neonates and small children. To help cure this we now substitute a Hot Line (1) transfusion line for the original plain tubing. This has proved very successful and now we only suffer a 0.1 to 0.2°C temperature (nasopharyngeal) drop during MUF.

If I or any of my colleagues can be of any further assistance, please do not hesitate to contact us. Phone: 00 44 171 813 8287; Fax: 00 44 171 813 8262.

Yours sincerely,
 Matthew Davis
 Chief Perfusionist
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 London WC1N 3JH

1. Hot Line. Level 1 Technologies, Rockland, Mass. Agents in UK: Kimal Scientific Ltd., Sussex.

Dear Editors:

Thank you for forwarding to us the comments on the paper Modified Ultrafiltration in Pediatric Cardiopulmonary Bypass (*J Extra-Corpor Technol.* 26(4):205-209) given by Mr. Matthew Davis, Chief Perfusionist at the Hospital for Sick Children, London. It is a real honor to receive suggestions from the group that has creatively pioneered the technique of MUF.

We agree that vacuum levels of -200 mmHg can be used safely during MUF, though we would recommend a gradual increase to this level in order to avoid rapid volume changes during the initial periods. Also, hemoconcentrators can vary in filtration rates and compliance from one manufacturer to another, and the gradual approach to vacuum levels will allow for better control.

We thank Mr. Davis for sharing his adaptation, the Hot Line, to eliminate the temperature drop that can be encountered during MUF. At our institution, we have switched in the last year from using crystalloid cardioplegia to blood cardioplegia for pediatric myocardial protection. Single-pass blood cardioplegia delivery systems provide not only excellent access to the arterial line for MUF, but also allow for warming via the integral heat exchangers in these devices. Bob Groom has outlined this technique previously (1), and we have experienced no significant cooling during MUF with our subsequent experience with this modification.

Again, we would like to applaud and acknowledge the contributions made in the areas of pediatric perfusion by the perfusionists and physicians at the Hospital for Sick Children in London.

Sincerely,
 Edward M. Darling, CCP
 Duke University Medical Center

1. Groom RC, Akl BF, Albus RA, et al. Alternative method of ultrafiltration after cardiopulmonary bypass. *Ann Thorac Surg.* 1994;58(2):573-574.