

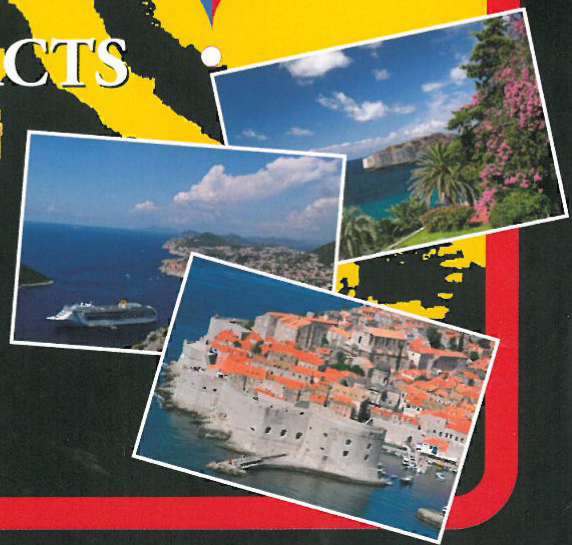


# 14th EUROPEAN CONGRESS

on  
*Extracorporeal Circulation Technology*  
*June 15th - 18th, 2011*

DUBROVNIK, CROATIA

• ABSTRACTS •



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### 3. *Clinical evaluation of a novel filtering device for 'shed blood' during cardiopulmonary bypass*

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#### **Introduction**

Cardiotomy suction during cardiopulmonary bypass (CPB) is used to avoid allogenic transfusion requirement. This blood aspirated from the mediastinal cavity is contaminated by a substantial fraction of potential embolic substances as well as activated platelets and vaso-active mediators. Several studies<sup>1-3</sup> has proven the deleterious effects of this 'shed blood' affecting almost all organs of the body. In case of major blood loss however, the perfusionist is forced to add the volume to the systemic circulation. According to published guidelines<sup>4</sup>, separate suction is a class one level B recommendation to avoid direct reinfusion of unprocessed blood exposed to pericardial and mediastinal surfaces.

#### **Objective**

Only a few companies produce a device that makes it feasible adding this volume in a safe and simple manner into the circulation. A new 'shed blood' filtering device has been developed, based on gravity separation and a polyester leukocyte depletion filter. The efficacy of such a filter with regard to clinical outcome is unknown. In our study setup, coronary artery bypass graft patients undergoing CPB are clinically evaluated for organ dysfunction after filtration of the mediastinal-suctioned blood. A comparison is made between a lipid filtered and a non-filtered group versus a control group of discarded mediastinal suctioned blood.

Preliminary results: A previous study<sup>5</sup> has shown that the capacity of this lipid filter is 63% for lipid particles and 52% for the activated leukocytes, measured before and after filtration. The mean lipid particle diameter was 15 micron. As most filters of 40 micron are ineffective, this filter has proven to be effective in the elimination of lipid particles and activated leukocytes, due to sedimentation over time and by filtration. In this present study we are investigating the clinical outcome after filtration.

#### **Conclusion**

The deleterious effects of 'shed blood'; especially lipid micro-emboli are still underestimated. Cardiotomy suctioned blood is pointed out as major source of organ dysfunction. No feasible devices yet were appropriate for integration in the extracorporeal circuit. As this new integrated device is first of its kind, it could be of clinical advantage for the patients. Our preliminary results will be presented and discussed.

## Reference

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