

Gaseous micro-emboli removal during priming procedure using pulsatile flow with 4 different adult oxygenators with integrated arterial filter and open reservoir.



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1. Introduction

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Pulsatile Perfusion (PP) is used routinely during cardiopulmonary bypass (CPB) in our department. Pulsatile Flow (PF) is recommended during the priming procedure because it allows the detection of problems such as leakage, rupture of fibers, or abnormal appearance of air before starting CPB. We compared the air handling of 4 different oxygenators during priming procedures in Continuous Flow (CF) and Pulsatile Flow (PF) modes.

2. Methods

- ✓ Comparison of 4 oxygenators: **Affinity Fusion® (Medtronic), Capiox FX25® (Terumo), Inspire 8F® (Liva Nova), Quadrox-i® (Maquet).**
- ✓ Standard priming protocole (CF + PF).
- ✓ Recording of Gaseous Micro Emboli (GME) using the Gampt BCC200 IN and OUT the 4 oxygenators.
- ✓ Data recorded: Number Reduction, Volume Reduction, Number and Volume.

3. Results

- ✓ No significant results between CF and PF modes within the same group of oxygenator in terms of postarterial filter measurement ($p = 0,09$ for Quadrox-i® = trend, not significant).
- ✓ GME measurements significantly differed between the four oxygenators: **Capiox FX25® and Affinity Fusion®** showed better reduction and crude values than **Inspire 8F® and Quadrox-i®**.

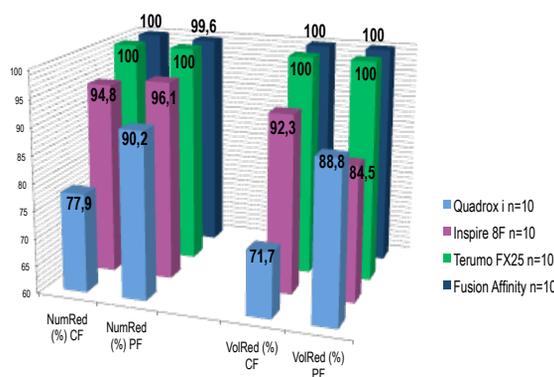
4. Conclusions

- ✓ *In vitro* ≠ *In vivo* => Prospective and randomized study: 200 patients, 5 modern oxygenators to evaluate their airhandling during CPB comparing continuous and pulsatile flow.
- ✓ Depth filter better than screen filter in airhandling?
- ✓ Is the venous reservoir the more sensitive piece of the circuit?
- ✓ Gampt bubble counter: built to be used with continuous flow. What alternative ?

5. References

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GME reduction by oxygenator and flow mode



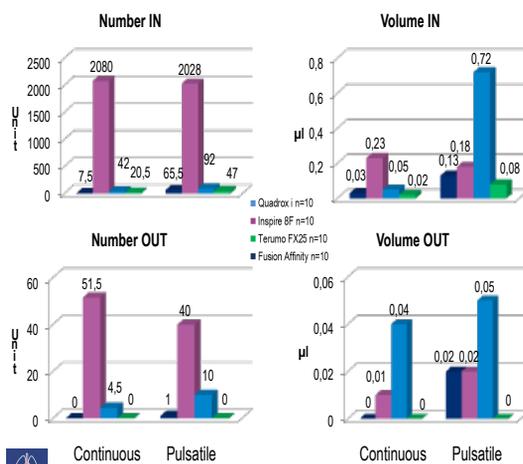
Comparison between oxygenators: p -value < 0,001 for all variables



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GME number and volume by oxygenator and flow mode



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