

# NeSECC

## 30 jaar

NeSECC editie 2006 nr. 2, Jubileum Editie; p.32

### Coated vs. noncoated in pediatric heart surgery a small literature review

A systemic inflammatory response after pediatric cardiac surgery is not uncommon. The cardiopulmonary bypass (CPB) circuit is seen as the main activator of the inflammatory response. For that reason several coatings have been developed to create a more biocompatible CPB circuit. Do these coatings result in less inflammatory response after pediatric cardiac surgery? Reviewing the literature on coating of pediatric CPB circuits, a lot of controversies are found. In Vitro studies show significantly better biocompatibility of coated circuits than of non-coated circuits. The outcomes of In Vivo or clinical studies are less convincing, many times only a few parameters show improvement. One of the problems of reviewing studies on coating is the different methodology used. A proper control group is sometimes lacking, there may be an important difference between the patients concerning age and bodyweight, and the prime volumes in the different groups are not always the same. Furthermore, measured parameters are many and sample moments show a big variability. Several factors may cause an inflammatory response, the artificial surface of the CPB circuit is an important activator but other activators are probably as important: ischemia-reperfusion, surgical trauma (especially that of cardiovascular surgery), endotoxaemia, and blood-air contact. Patients that have cardiovascular operations without the use of CPB have been reported to show also signs of serious inflammatory response. Summarizing the review of the literature we may conclude that an improved biocompatibility by coating is most reliably demonstrated by In Vitro studies while clinical studies in the pediatric population do not show equally convincing beneficial effects.



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