Response to Better for Some, Maybe Not for All: A Response to Preemptive Transfusion and Infusion Strategy in Children during Craniofacial Reconstruction

Paolo Cortellazzi, Dario Caldiroli, Massimo Lamperti, Monica Bricchi, Laura Valentini

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**Title: Response to Better for Some, Maybe Not for All: A Response to
Preemptive Transfusion and Infusion Strategy in Children during Craniofacial
Reconstruction**

Paolo Cortellazzi MD § , Dario Caldiroli MD §, Massimo Lamperti MD §, Monica Bricchi MD §
and Laura Valentini MD °

§ Department of Anesthesiology, Istituto Nazionale Neurologico Carlo Besta, Milan, Italy
° Department of Pediatric Neurosurgery, Istituto Nazionale Neurologico Carlo Besta, Milan, Italy

Contact author:

Paolo Cortellazzi, MD
pcortellazzi@istituto-besta.it

Paolo Cortellazzi, MD
Department of Anesthesiology
Istituto Nazionale Neurologico Carlo Besta
Via Celoria, 11
I-20133 Milano MI
Italy

For Peer Review

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Sir-- We appreciate the comment to our presentation by Ririe et al. We agree that some observations regarding the risk of unnecessary transfusions by adopting the pre-emptive infusion trasfusion strategy (EPTI) have to be explained . For this reason, we'll give more details in order to better understand our management of blood loss of the earlier cranioplasties (Control group) and of EPTI group.

Median intra-operative blood losses of Control group were 20% of estimated red cell volume (95% CI: 4%-73%) while perioperative blood losses were 50% (95% CI: 25%-120%). Most infants of this series showed post-operative hematocrit values lower than 20% and , given their unstable clinical conditions, the clinicians transfused blood products in 22 of them. Two out of three infants were not transfused but had hematocrit values of 15% and 18% respectively eight hours following surgery. Only one infant of EPTI group had an Ht value at the end of surgery higher than basal Ht (34% vs. 27%); perioperative blood losses in the same group were 71% of ERCV (95% CI: 40%-163%). During the post-operative period and at discharge from the hospital, hematocrit was never lower than 20%. In this group, the outcome measures considered in our study (i.e. feeding time lower than seven hours to the end of surgery, length of stay in the intensive care unit and post-operative length of stay in hospital) were considerably better. Jonas *et al.* (19) found that haemodilution to a hematocrit thought to be safe (i.e. 21%) , in infants undergoing hypothermic cardiopulmonary by-pass, was associated with adverse perioperative and developmental outcome (1). Perhaps in our study better outcomes in the EPTI group may have the same source. The EPTI strategy may help reach normovolemia and a perioperative stable hematocrit higher than 20% in hemorrhagic surgery of infants minimizing the effects of differences in anaesthesiologists and in patients.

On the other hand, where predicted blood losses are lower than 20%, with extreme values no higher than 20% , a conservative approach could be preferred supporting preoperative erythropoietin and autologous normovolemic donation in selected cases. Without doubt, less invasive surgical techniques (2-4) in comparison to the traditional procedure adopted by our team (2) are crucial to reduce perioperative blood loss. This may result both in stable hematocrit values without homologous transfusions practices and in an easier approach to replace fluid and blood when infants require it. Beyond these advantages, there is still a lack of evidence on the final results for all craniosynostoses treatment, in terms of

cephalic index and 3D-head CT scan between CVR, spring-mediated cranioplasty and endoscopic strip craniotomy.

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