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

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

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

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For Peer Review

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5 Sir-- We appreciate the comment to our presentation by Ririe et al. We
6 agree that some observations regarding the risk of unnecessary
7 transfusions by adopting the pre-emptive infusion transfusion strategy
8 (EPTI) have to be explained . For this reason, we'll give more details in
9 order to better understand our management of blood loss of the earlier
10 cranioplasties (Control group) and of EPTI group.
11

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

35 On the other hand, where predicted blood losses are lower than 20%, with
36 extreme values no higher than 20% , a conservative approach could be
37 preferred supporting preoperative erythropoietin and autologous
38 normovolemic donation in selected cases. Without doubt, less invasive
39 surgical techniques (2-4) in comparison to the traditional procedure
40 adopted by our team (2) are crucial to reduce perioperative blood loss.
41 This may result both in stable hematocrit values without homologous
42 transfusions practices and in an easier approach to replace fluid and blood
43 when infants require it. Beyond these advantages, there is still a lack of
44 evidence on the final results for all craniosynostoses treatment, in terms of
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3 cephalic index and 3D-head CT scan between CVR, spring-mediated
4 cranioplasty and endoscopic strip craniotomy.
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