

Franz AR, Engel C, Bassler D, Rüdiger M et al. ETTNO Investigators. Effects of Liberal vs Restrictive Transfusion Thresholds on Survival and Neurocognitive Outcomes in Extremely Low-Birth-Weight Infants: The ETTNO Randomized Clinical Trial. JAMA. 2020 Aug 11;324(6):560-570. doi: 10.1001/jama.2020.10690.

Objectives: Do liberal transfusion strategies in ELBW improve survival & neurodevelopmental outcome at 24 months of corrected age as compared with vs restrictive strategy

Design: Randomized Superiority Trial.

Setting: Multicentric, 36 centers in Europe

Patients: Neonates weighing 400-999 gms at birth from Jul 2011-Nov 2014

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



Effects of Transfusion Threshold on Neurocognitive Outcomes in ELBW Infants (ETTNO)

Results

- 1013 infants (M=F) were enrolled, randomized to either groups within 72 hours of age
- **79 % (391/492)** in liberal threshold group & **60% (311/521)** in restrictive threshold group received at least 1 RBCT (Large difference in the no. of RBCTs administered b/w groups)
- Cumulative volumes transfused through 36 weeks PMA were higher in the liberal threshold group than in the restrictive threshold group (Median, **40mL** [IQR, 16-73 mL] vs **19 mL** [IQR, 0-46 mL]).
- Weekly **mean hematocrit values were 3 % points higher** in the liberal threshold group
- The rates of death or Neurodevelopmental Impairment were **44.4%** vs **42.9%**, for a risk difference of 1.6% (95%CI, -4.8%to +7.9%) and an odds ratio of **1.05** (95% CI,0.80-1.39;**P = .72**) adjusted for center & birth weight stratum
- **No statistically significant differences between two groups in rates of components of the primary outcome or incidence of cognitive deficit (defined as MDI score 70), the MDI score, the PDI score, length of hospital stay, or time intervals from birth to final discontinuation of invasive respiratory supports, respiratory stimulant therapy, & gavage feeding**
- Weight, Head circumference, and length at 36 weeks of PMA & at follow-up were also not significantly different between groups, **except for weight at 36 weeks of postmenstrual age, which was higher in the liberal threshold group** (mean, **2113 g** [SD, 356 g] vs **2068 g** [SD, 361 g]; difference in least-square means, 44 g [95%CI, 3-85 g]; **P = .04**)
- Post hoc analyses indicated that the mean MDI score was 3.5 points lower, and the proportion of infants with MDI scores lower than 85 was 11 percentage points higher, in the restrictive threshold group.

Conclusion: Among infants with birthweights <1000 grams, a strategy of liberal blood transfusions compared with restrictive transfusions did not reduce the likelihood of death or disability at 24 months of corrected age

EXPERT COMMENT



“Evidence-based transfusion thresholds have not been yet established , however restrictive policy is recommended, as RBCTs can have their own complications & are associated with IVH, NEC, BPD, ROP & death as well. Concern with the “restrictive strategy” was increased neurodevelopmental impairment compared to Liberal in earlier small studies and subgroup analysis. This study reported ‘Liberal transfusion strategies did not reduce the likelihood of death or disability. However, transfusion strategies need to be also individualized on basis of critical illness.”

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Reference : Franz AR, Engel C, Bassler D, Rüdiger M, Thome UH, Maier RF, Krägeloh-Mann I, Kron M, Essers J, Bühler C, Rellensmann G, Rossi R, Bittrich HJ, Roll C, Höhn T, Ehrhardt H, Avenarius S, Körner HT, Stein A, Buxmann H, Vochem M, Poets CF; ETTNO Investigators. Effects of Liberal vs Restrictive Transfusion Thresholds on Survival and Neurocognitive Outcomes in Extremely Low-Birth-Weight Infants: The ETTNO Randomized Clinical Trial. JAMA. 2020 Aug 11;324(6):560-570. doi: 10.1001/jama.2020.10690.