Obstetric Anaesthesia
Annual Scientific Meeting 2021 goes virtual
10-11 June 2021

Predicting post-delivery anaemia: Development of the MABL table

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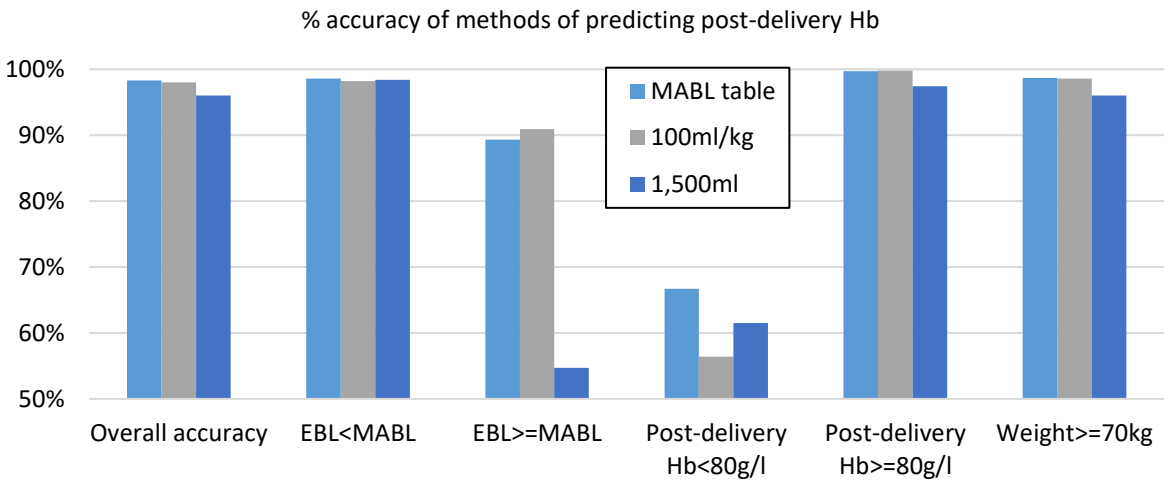
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Introduction

- Major obstetric haemorrhage (MOH) has historically been declared at an arbitrary estimated blood loss (EBL) of 1,500ml
- Maximum allowable blood loss (MABL) gives a bespoke EBL based on patient weight and starting haemoglobin (Hb)
- Circulating blood volume (CBV) varies with 3rd trimester weight[1], with reducing ml/kg as weight rises. So calculation using 100ml/kg for all women may be inaccurate
- Previous work[2] suggests a **pre-calculated MABL table** is accurate and may be useful in guiding decision making during MOH

Methods

- **Can we predict post-delivery Hb<80g/l?**
- **How does MABL table compare to other methods?**
- Data for 966 patients over 6 months
- Included all modes of delivery
- Data fields collected included:
  - Third trimester weight
  - Pre-/post delivery haemoglobin
  - Blood loss
  - Transfusion requirement



Maximum Allowable Blood Loss in Obstetrics
Reference MABL Table (ml)

3rd trim weight (kg)	Starting Hb (g/l) ≤85	90	95	100	105	110	115	120	125	130	135	140	145	≥150
≤50	295	555	790	1000	1190	1365	1520	1665	1800	1925	2035	2145	2240	2335
55	325	610	870	1100	1310	1500	1675	1835	1980	2115	2240	2355	2465	2565
60	355	665	945	1200	1430	1635	1825	2000	2160	2310	2445	2570	2690	2800
65	380	720	1025	1300	1550	1770	1980	2165	2340	2500	2650	2785	2915	3035
70	410	780	1105	1400	1665	1910	2130	2335	2520	2690	2850	3000	3140	3265
75	420	790	1125	1425	1695	1945	2170	2375	2565	2740	2905	3055	3195	3325
80	425	800	1135	1440	1715	1965	2190	2400	2590	2770	2935	3085	3230	3360
85	440	830	1180	1495	1780	2040	2275	2495	2695	2875	3045	3205	3355	3490
90	450	850	1210	1530	1820	2085	2330	2550	2755	2940	3115	3280	3430	3570
95	470	885	1260	1595	1900	2175	2430	2660	2875	3070	3250	3420	3575	3725
100	470	890	1265	1600	1905	2180	2435	2665	2880	3075	3260	3430	3585	3735
105	480	910	1295	1640	1950	2235	2490	2730	2950	3150	3335	3510	3670	3820
110	485	915	1300	1650	1965	2250	2510	2750	2970	3175	3360	3535	3700	3850
115	495	935	1325	1680	2000	2290	2555	2800	3020	3230	3420	3600	3765	3920
≥120	505	955	1360	1720	2050	2345	2615	2865	3095	3310	3505	3685	3855	4015

Results

- **More than 50% of transfused women lost LESS THAN 1500ml**
- MABL table and 100ml/kg method agreed in >99% of patients, and **predicted post-delivery Hb correctly in >95%**
- Of the patients who had an unpredicted Hb<80, only one third required transfusion (0.6% of all patients)
- MABL table may be slightly more accurate identifying post-delivery anaemia than other methods
- MABL table is more conservative than 100ml/kg, and so may be more acceptable in clinical practice

Discussion

- Numbers were small at extremes of weight and Hb; study underpowered for statistical significance
- MABL table appears to be more accurate than using EBL of 1,500ml for all to predict post-delivery anaemia
- **MABL table allows earlier identification of women at risk of post-delivery anaemia**
- Introduced to elective and emergency obstetric theatre pre-operative brief/pause with positive engagement from staff
- Ongoing evaluation of use

1. Vricella LK, Louis JM, Chien E et al. Blood volume determination in obese and normal weight gravidas: the hydroxyethyl starch method. Am J Obstet Gynaecol. 2015 Sep;213(3): 408.e1-408.e6
2. Short A, Sweeney L, Keast T et al. The obstetric MABL table. Int J Obs Anaesth suppl 2018, S21