

Treatment of postpartum haemorrhage: NATA consensus statement

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COI: None



Pre-assessment

Monitor & treat anaemia. Blood type/crossmatch.
Active management of the third stage of labour.
High risk patient → Multidisciplinary plan.

PPH management algorithm

International Expert Statement



Clinical symptoms

Bleeding volume

HR >100 bpm

Palor

>1000 mL

Syst BP <100mmHg

Ongoing bleeding

>1500mL

Dizziness

Massive bleeding

>2500mL

Coma

Massive bleeding

>4000mL

Call for help early!

- ✓ Obstetrician/Midwife etc.
- ✓ Anaesthetist/Nurse etc.
- ✓ Surgeon/OR etc.

Initial assessment

- ✓ Breathing Oxygen 2 L/min
- ✓ Warming & monitoring
- ✓ Venous access x 2
- ✓ Analgesia
- ✓ Urinary catheter
- ✓ Estimate blood loss
- ✓ Verify blood type/cross
- ✓ Verify blood available
- ✓ Repeated haemoglobin
- ✓ Analyze clotting (LAB/POC)
- ✓ Inform patient +family

Transfer

- ✓ At any time, transfer to a higher level hospital if needed or for ICU admission.
- ✓ Alert transfer organization

Temporary measures

- ✓ Uterotonic drug
- ✓ Bimanual or Intrauterine balloon compression
- ✓ External aortic compression

Bleeding control – treat the cause!

		Local measures to control bleeding			Rescue surgery
Uterine atony	Treat atony <i>Uterine massage</i>	Non-surgical <i>Bi-manual compression</i> <i>Balloon tamponade</i>	Surgical <i>Arterial ligation</i> <i>Surgical compression</i>	Embolization	Hysterectomy <i>Abdominal packing</i>
Uterotonic drugs					
First line	Oxytocin bolus 5-10 IU IV/IM → Oxytocin infusion: 10-40 IE/500 mL crystalloid/hour				
Second line	Syntometrin 1 mL IM (500 micrograms ergometrine and 5 IU oxytocin)			Ergometrin 0.2 mg IM	
	Prostaglandins: Misoprostol Sublingual: 200-800µg			Sulprostone Infusion: 500 µg/1 hours	
Placental retention	Early manual removal or smooth curetage		<div>Provide regional anesthesia in cases of haemodynamics stability. Prefer general anaesthesia in cases of prolonged surgical procedure or haemodynamic instability. Avoid inhaled anaesthetics (relaxes uterus)</div>		
Genital track injury	Tears suture. haematoma evacuation				
Uterine rupture	Surgical suture → rescue hysterectomy				
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Control of Coagulopathy - Circulation - Homeostasis

Monitor	Circulation <i>BP HR SpO² non-invasive</i>	Haemodynamics <i>A-line etc.</i>	Response to therapy <i>Central line (ScvO₂), CO-monitoring if available etc.</i>
Treat	Crystalloids 1000mL	Crystalloids 2000mL	Crystalloids 3000mL
Vasopressors (if needed)	Phenylephrine (HR> 100) → Ephedrine (HR < 100) →	Norepinephrine	Norepinephrine or epinephrine
Monitor → Treat	Hypocalcemia	Lactate - Acidosis	Hypothermia
Initiate	Tranexamic acid 1g IV Intraoperative Cell salvage (if available)		
	Repeat 1g IV in ongoing bleeding		
Monitor →Treat	Haemoglobin (Hb.) (repeatedly) & clotting (repeat if needed)		
Transfusions (MTP)	RBC if Hb. < 7.0-8.0 g/d	<u>Massive PPH → Activate</u> Massive Transfusion Protocol → Transfuse RBC, plasma & platelets aiming at ratio 1:1:1 → Ensure fibrinogen levels are greater than 2 g/L	
Fibrinogen substitution if	Fibrinogen concentration < 2 g/L (or ROTEM FIBTEM A5 < 12 mm or TEG FF MA < 14 mm) Fibrinogen concentrate 2-4 g or cryoprecipitate 5-10 mL/kg		

Prevention and Treatment of Postpartum Haemorrhage (PPH)

Focus on Patient Blood Management

A multidisciplinary expert meeting organised by NATA

in collaboration with

the International Federation of Gynecology and Obstetrics (FIGO),
the European Board and College of Obstetrics and Gynaecology
(EBCOG),

the European Society of Anaesthesiology (ESA),
and the World Health Organization (WHO)

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Bank Special Programme of
Research, Development and
Research Training in Human
Reproduction
Department of Reproductive Health
and Research
World Health Organization
Geneva, Switzerland

Charles-Marc Samama MD PhD

ESA Scientific Committee
Chairperson
Professor and Chairman
Department of Anaesthesia and
Intensive Care Medicine
Cochin University Hospital
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<p>Call for help early!</p> <ul style="list-style-type: none">✓ Obstetrician/Midwife etc.✓ Anaesthetist/Nurse etc.✓ Surgeon/OR etc. <p>Initial assessment</p> <ul style="list-style-type: none">✓ Breathing Oxygen 2 L/min✓ Warming & monitoring✓ Venous access x 2✓ Analgesia✓ Urinary catheter✓ Estimate blood loss✓ Verify blood type/cross✓ Verify blood available✓ Repeated haemoglobin✓ Analyze clotting (LAB/POC)✓ Inform patient +family <p>Transfer</p> <ul style="list-style-type: none">✓ At any time, transfer to a higher level hospital if needed or for ICU admission.✓ Alert transfer organization <p>Temporary measures</p> <ul style="list-style-type: none">✓ Uterotonic drug✓ Bimanual or Intrauterine balloon compression✓ External aortic compression	<p>Clinical symptoms</p> <p>Bleeding volume</p>	<p>HR >100 bpm</p> <p>Pallor</p> <p>>1000 mL</p>	<p>Syst BP<100mmHg</p> <p>Ongoing bleeding</p> <p>>1500mL</p>	<p>Dizziness</p> <p>Massive bleeding</p> <p>>2500mL</p>	<p>Coma</p> <p>Massive bleeding</p> <p>>4000mL</p>
	<p>Bleeding control – treat the cause!</p>	<p>Uterine atony Treat atony</p> <p> Uterine massage</p> <p>Uterotonic drugs</p> <p>First line Oxytocin bolus 5-10 IU IV/IM → Oxytocin infusion: 10-40 IE/500 mL crystalloid/hour</p> <p>Second line Syntometrin 1 mL IM (500 micrograms ergometrine and 5 IU oxytocin) Ergometrin 0.2 mg IM</p> <p> Prostaglandins: Misoprostol Sublingual: 200-800µg Sulprostone Infusion: 500 µg/1 hours</p> <p>Placental retention Early manual removal or smooth curettage</p> <p>Genital track injury Tears suture. haematoma evacuation</p> <p>Uterine rupture Surgical suture → rescue hysterectomy</p> <p>Uterine inversion Immediate manual replacement → laparotomy rescue hysterectomy</p>	<p>Local measures to control bleeding</p> <p>Non-surgical Surgical Embolization Rescue surgery</p> <p> Bi-manual compression Arterial ligation Hysterectomy</p> <p> Balloon tamponade Surgical compression Abdominal packing</p>		
		<p>Provide regional anaesthesia in cases of haemodynamics stability. Prefer general anaesthesia in cases of prolonged surgical procedure or haemodynamic instability. Avoid inhaled anaesthetics (relaxes uterus)</p>			
<p>Control of Coagulopathy - Circulation - Homeostasis</p>	<p>Monitor Circulation</p> <p> BP HR SpO² non-invasive</p> <p>Treat Crystalloids 1000mL</p> <p>Vasopressors Phenylephrine (HR > 100) → Norepinephrine</p> <p>(if needed) Ephedrine (HR < 100) →</p> <p>Monitor → Treat Hypocalcemia Lactate - Acidosis</p>	<p>Haemodynamics</p> <p>A-line etc.</p> <p>Crystalloids 2000mL</p> <p>Norepinephrine or epinephrine</p> <p>Hypothermia</p>	<p>Response to therapy</p> <p>Central line (ScvO₂), CO-monitoring if available etc.</p> <p>Crystalloids 3000mL</p> <p>Norepinephrine or epinephrine</p> <p>Hypothermia</p>		
	<p>Initiate Tranexamic acid 1g IV</p> <p> Intraoperative Cell salvage (if available)</p> <p>Monitor →Treat Haemoglobin (Hb.) (repeatedly) & clotting (repeat if needed)</p> <p>Transfusions RBC if Hb. < 7.0-8.0 g/dL</p> <p>(MTP)</p> <p>Fibrinogen substitution if Fibrinogen concentration < 2 g/L (or ROTEM FIBTEM A5 < 12 mm or TEG FF MA < 14 mm)</p> <p> Fibrinogen concentrate 2-4 g or cryoprecipitate 5-10 mL/kg</p>	<p>Repeat 1g IV in ongoing bleeding</p> <p>Massive PPH → Activate Massive Transfusion Protocol</p> <p>→ Transfuse RBC, plasma & platelets aiming at ratio 1:1:1</p> <p>→ Ensure fibrinogen levels are greater than 2 g/L</p>			

PBM program

We recommend hospitals to have a Patient Blood Management (PBM) program (1.B)

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Bleeding control – treat the cause!

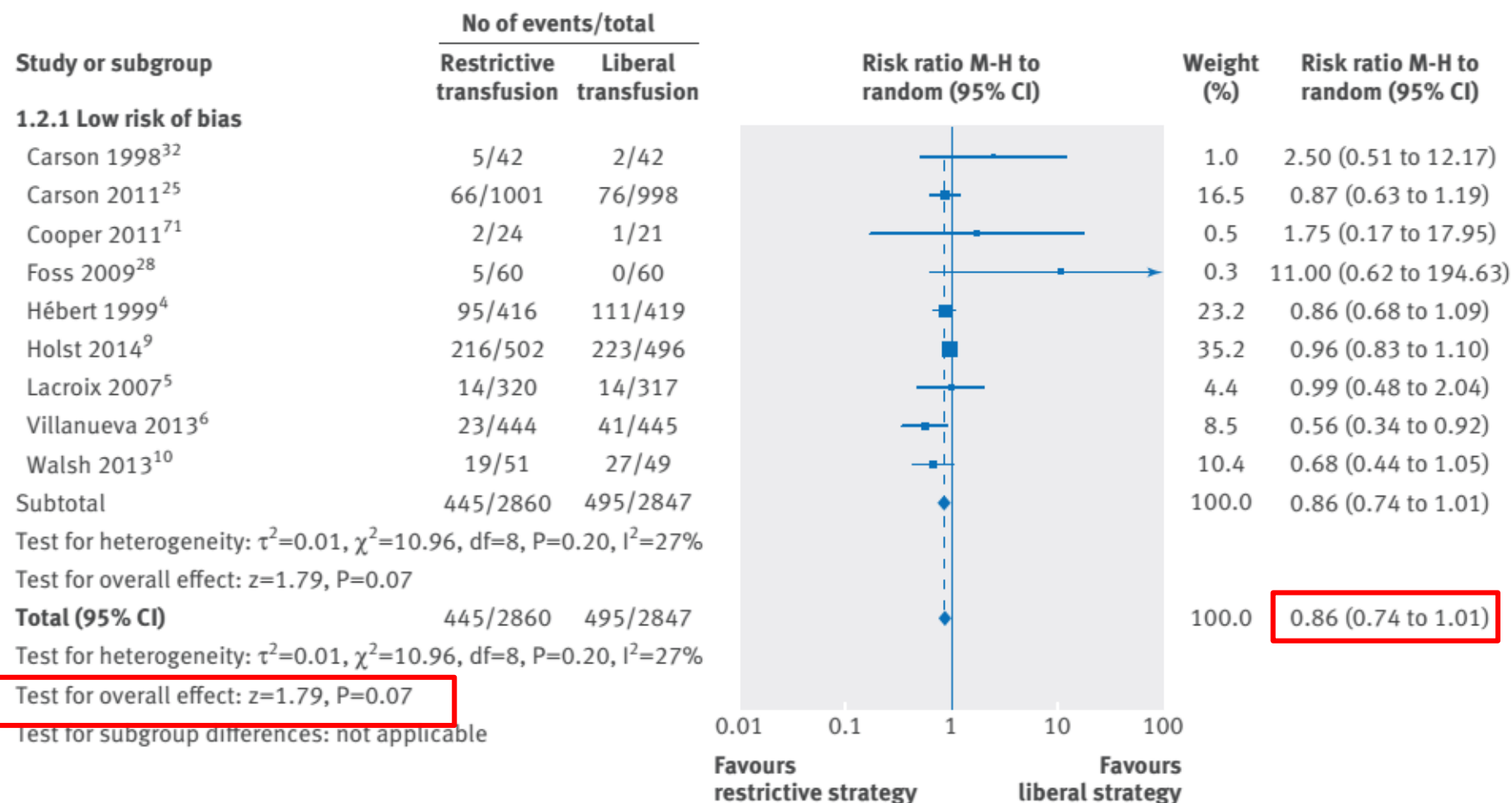
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Uterine atony	Treat atony <i>Uterine massage</i>	Non-surgical <i>Bi-manual compression</i> <i>Balloon tamponade</i>	Surgical <i>Arterial ligation</i> <i>Surgical compression</i>	Embolization	Hysterectomy <i>Abdominal packing</i>
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Monitor → Treat Transfusions (MTP)	Haemoglobin (Hb.) (repeatedly) & clotting (repeat if needed) RBC if Hb. < 7.0-8.0 g/d		
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Primary outcome - mortality



9 trials with lower risk of bias, n=5707

Holst et al. BMJ 2015

WOMB Trial

BW Prick,^{a,b} AJG Jansen,^c EAP Steegers,^a WCJ Hop,^d ML Essink-Bot,^e CA Uyl-de Groot,^f
BMC Akerboom,^g M van Alphen,^h KWM Bloemenkamp,ⁱ KE Boers,^j HA Bremer,^k A Kwee,^l
AJ van Loon,^m GCH Metz,ⁿ DNM Papatsonis,^o JAM van der Post,^p MM Porath,^q RJP Rijnders,^r
FJME Roumen,^s HCJ Scheepers,^t DH Schippers,^u NWE Schuitemaker,^v RH Stigter,^w MD Woiski,^x
BWJ Mol,^p DJ van Rhenen,^c JJ Duvekot^a

sPPH (> 1000 ml) – median 1500 mL

n=521

Inclusion : Hb 5-8 g/dL



RBC Tx to > 8.5 g/dL vs. No-RBC-Tx (7.5 g/dL)

No difference after 6 weeks (median 10 g/dL)

Primary outcome :

Physical fatigue – no difference!

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Hb 7.0 g/dL

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PBM program

We recommend monitoring fibrinogen levels early in severe ongoing PPH in order to consider fibrinogen substitution at levels < 2 g/L (1.C)

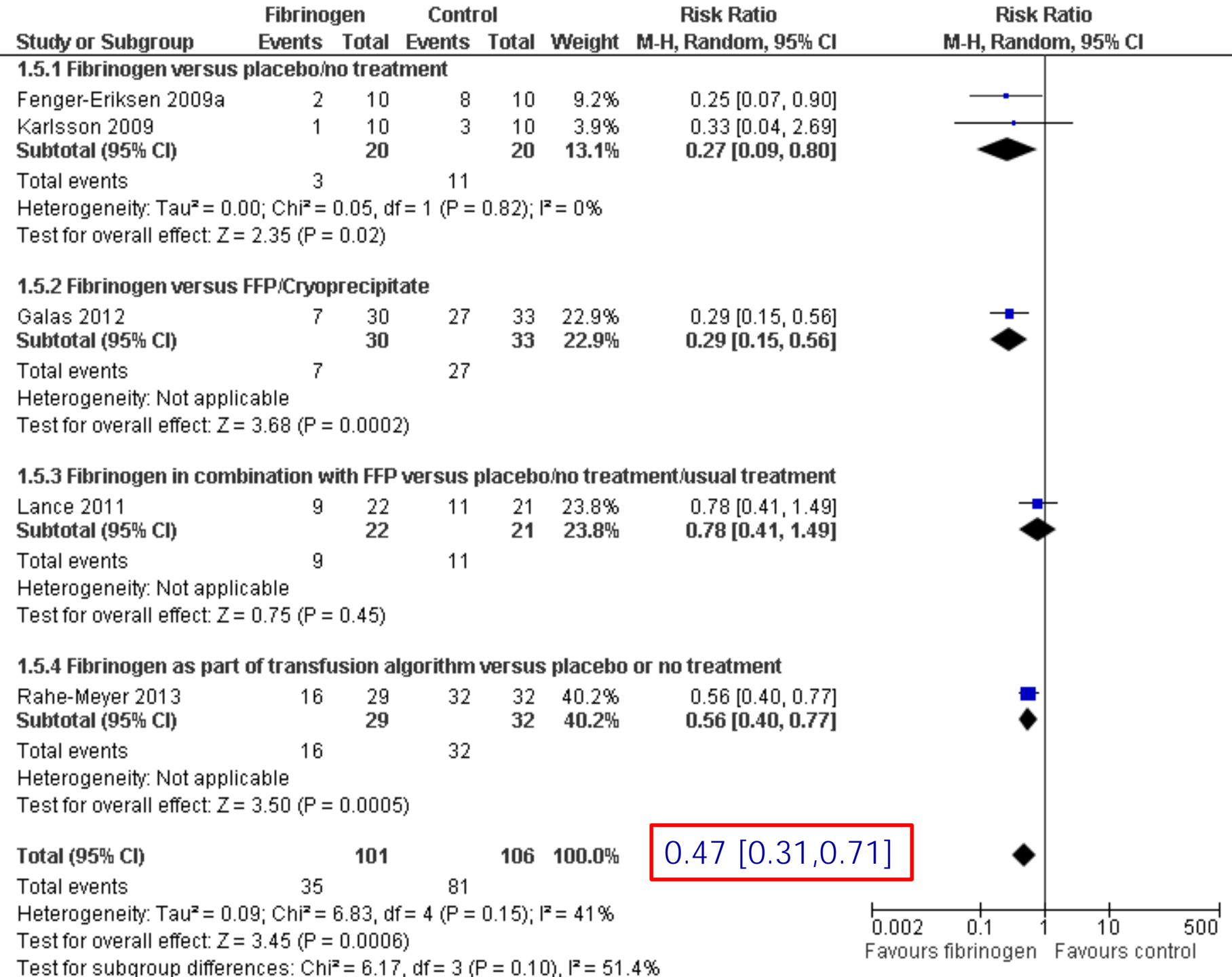


Hiippala et al's landmark paper

Resuscitation induced fibrinogen deficiency

Table 1. Critical Level of Hemostatic Factors and the Inversely Predicted Corresponding Blood Loss (95% Confidence Interval) as Percent of Calculated Blood Volume

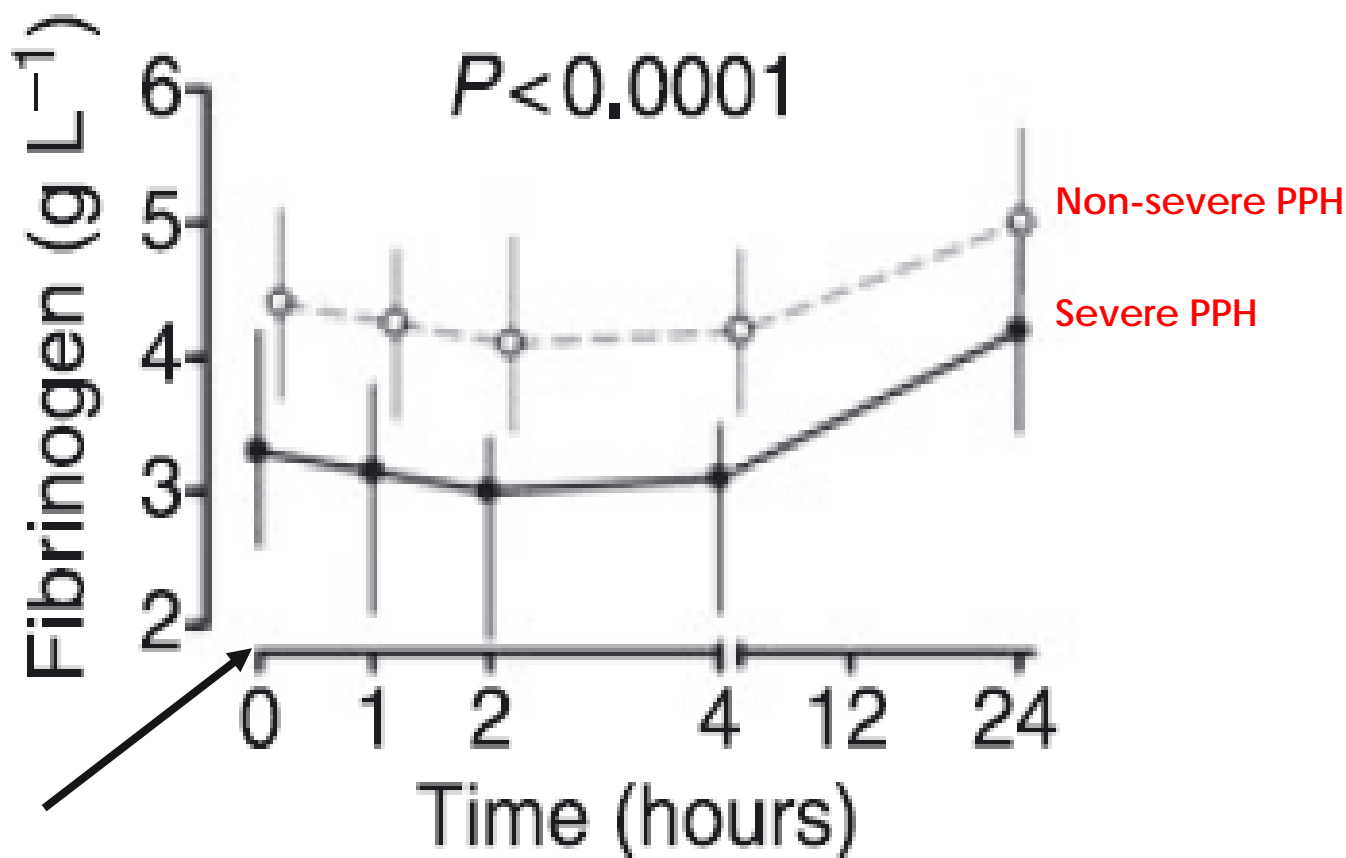
Hemostatic factor	Critical level	Blood loss (%)
Platelets	$50 \times 10^3/\text{mm}^3$	230 (169–294)
Fibrinogen	1.0 g/L	142 (117–169)
Prothrombin	20	201 (160–244)
Factor V	25	229 (167–300)
Factor VII	20	236 (198–277)

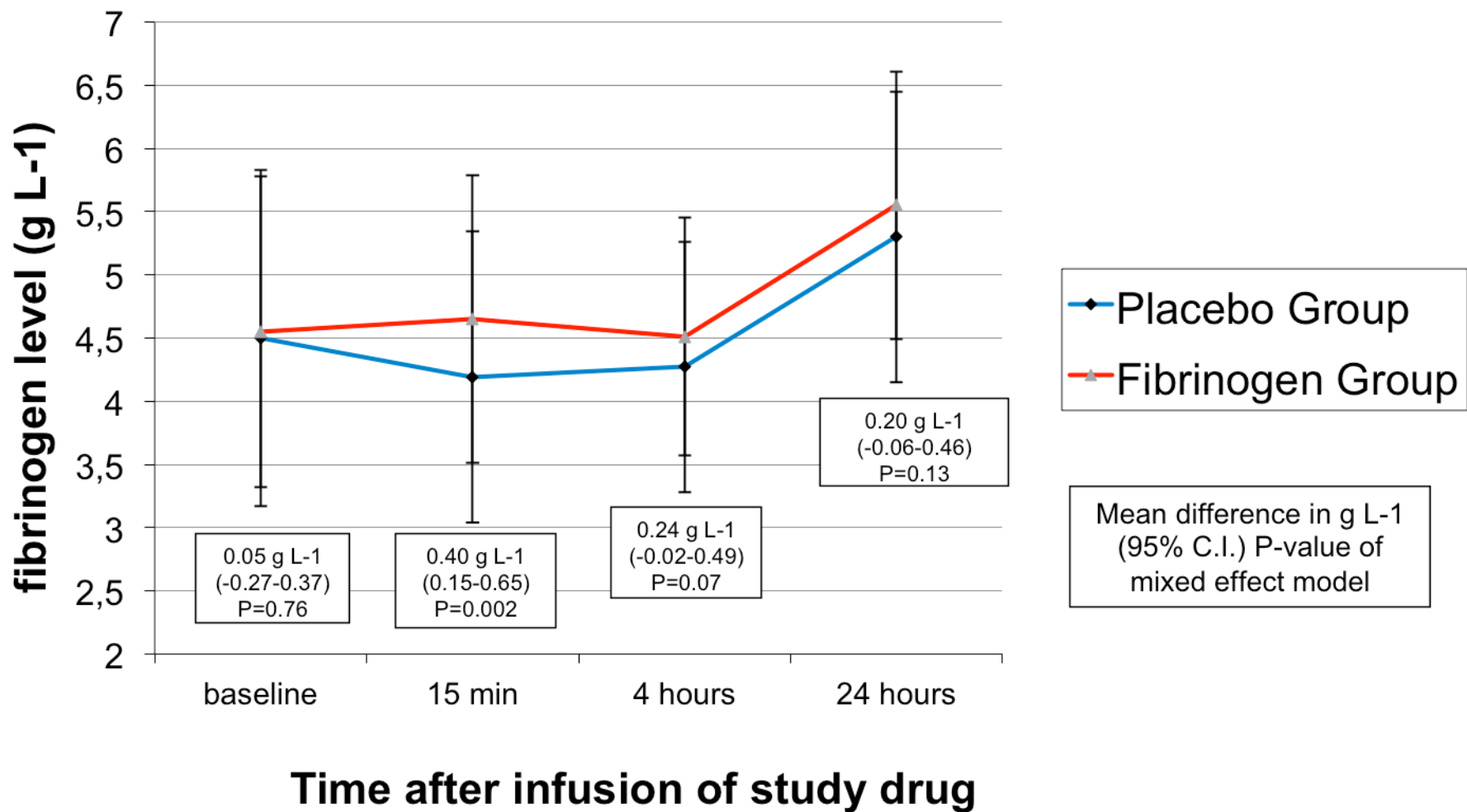


ORIGINAL ARTICLE

The decrease of fibrinogen is an early predictor of the severity of postpartum hemorrhage

B. CHARBIT,*† L. MANDELBROT,‡ E. SAMAIN,§ G. BARON,¶ B. HADDAOUI,††† H. KEITA,‡¶
O. SIBONY,** D. MAHIEU-CAPUTO,¶ M. F. HURTAUD-ROUX,** M. G. HUISSE,¶††
M. H. DENNINGER,††† and D. DE PROST††††† FOR THE PPH STUDY GROUP





Pre-emptive treatment with fibrinogen concentrate for postpartum haemorrhage: randomized controlled trial

5

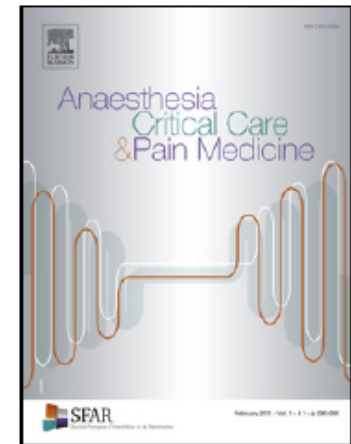
Wikkelsø et al

Table 2 Primary and secondary outcomes, intention to treat. RBC, red blood cell. Data are presented as the median [IQR] or *n* (%). *One hundred and forty-eight values are missing (61%). †Mean difference with 95% confidence interval (CI; Student's *t*-test). ‡Wilcoxon rank sum test

Outcome	Fibrinogen (<i>n</i> =123)	Placebo (<i>n</i> =121)	Relative risk (95% CI)	<i>P</i> -value
Primary outcome				
Need for RBC transfusion (during the 6 week period postpartum)	25 (20.3%)	26 (21.5%)	0.95 (0.58–1.54)	0.88
Secondary outcomes				
Estimated blood loss after study drug (ml)	1700 [1500–2000]	1700 [1400–2000]	66 [–78; 210]†	0.37
Need for RBC transfusion (up to 4 h after study drug)	4 (3.3%)	10 (8.3%)	0.39 (0.13–1.22)	0.11
Need for RBC transfusion (up to 24 h after study drug)	14 (11.4%)	19 (15.7%)	0.72 (0.38–1.38)	0.35
Need for RBC transfusion (up to 7 days after study drug)	25 (20.3%)	26 (21.5%)	0.95 (0.58–1.54)	0.88
Total amount of blood transfused	0 [0,0]	0 [0,0]	‡	0.83
Range [min, max]	[0,7]	[0,4]		
Severe PPH*	20 (40.0%)	24 (52.2%)	0.77 (0.49–1.19)	0.31
Death	0 (0.0%)	0 (0.0%)	–	
Haemostatic intervention	0 (0.0%)	0 (0.0%)	–	
Transfusion of ≥ 4 units of RBCs	8 (6.5%)	3 (2.5%)	2.62 (0.71–9.65)	0.22
Decrease in haemoglobin >40 g litre ⁻¹ *	20 (40.0%)	24 (52.2%)	0.77 (0.49–1.19)	0.31
Rebleeding	2 (1.6%)	2 (1.7%)	0.98 (0.14–6.87)	1.00
Lowest haemoglobin <58 g litre ⁻¹	1 (0.8%)	5 (4.1%)	0.20 (0.02–1.66)	0.12

Title: Fibrinogen concentrate as a treatment for post-partum haemorrhage-induced coagulopathy: a study protocol for a randomized multicentre controlled trial. The Fibrinogen in haemorrhage of DELivery (FIDEL) trial

Author: Anne-Sophie Ducloy-Bouthors Alexandre Mignon
Cyril Huissoud Jean-Marie Grouin Frédéric J. Mercier



- RCT
- N = 412
- 3 g fibrinogen in patients needing second line uterotonics
- Primary endpoint - composite
 - patients losing at least 4 g/dL of Hb, and/or
 - requiring least 2 units of RBC in 48 h

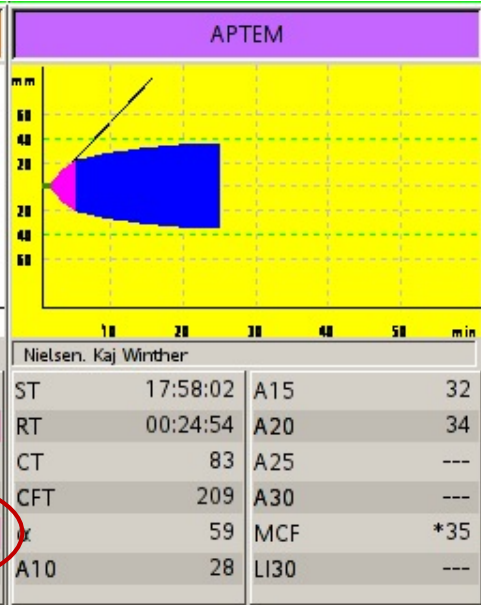
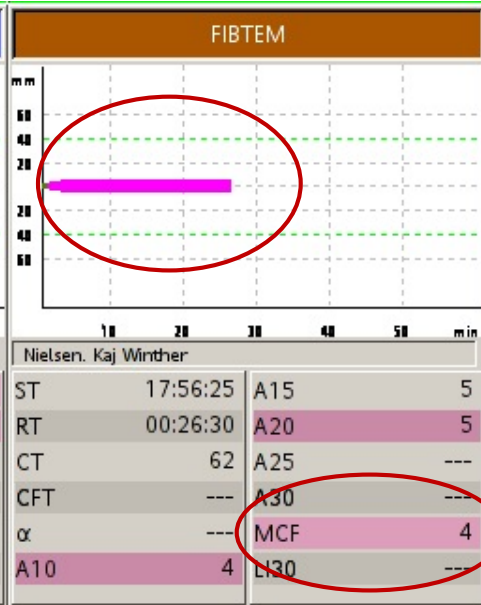
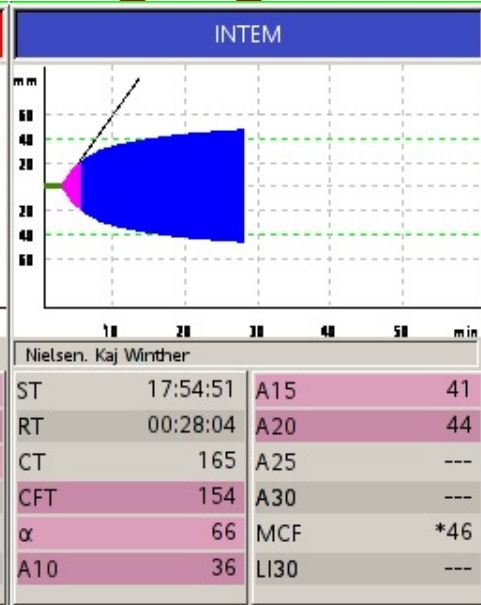
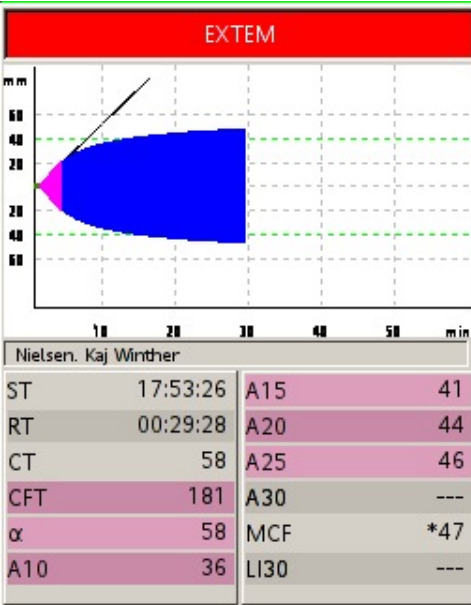
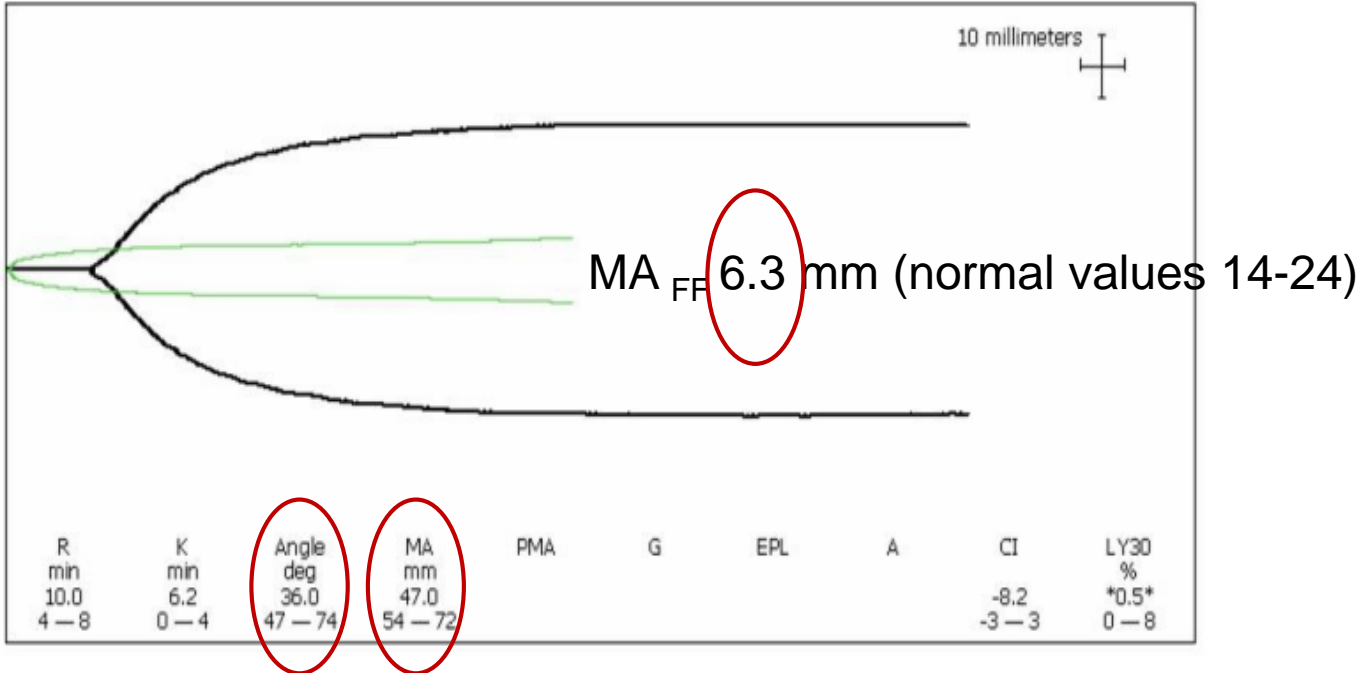
Fibrinogen concentrate versus placebo for treatment of postpartum haemorrhage: study protocol for a randomised controlled trial

Nadine Aawar^{1*}, Raza Alikhan², Daniel Bruynseels³, Rebecca Cannings-John¹, Rachel Collis³, John Dick⁴, Christopher Elton⁵, Roshan Fernando⁴, Judith Hall^{3,6}, Kerry Hood¹, Nicki Lack⁷, Shuba Mallaiah⁸, Helena Maybury⁹, Jacqueline Nuttall¹, Shantini Paranjothy¹⁰, Rachel Rayment¹¹, Alexandra Rees¹¹, Julia Sanders^{1,11}, Julia Townson¹, Andrew Weeks¹² and Peter Collins^{2,6}

Aawar et al. *Trials* (2015) 16:169
DOI 10.1186/s13063-015-0670-9

- RCT
- N = 60 with PPH > 1500 mL (ongoing)
- ROTEM goal-directed therapy
- Trigger: < 3.0 g/L (FIBTEM A5 < 16 mm).
- Goal: > 4 g/L (ROTEM FIBTEM A5 > 23 mm)
- Primary outcome:
 - Total number of allogeneic blood products

Functional Fibrinogen TEG® / FIBTEM ROTEM®



PBM program

We recommend monitoring fibrinogen levels early in severe ongoing PPH in order to consider fibrinogen substitution at levels < 2 g/L (1.C)

Massive
uncontrollable



Pre-assessment

Monitor & treat anaemia. Blood type/crossmatch.
Active management of the third stage of labour.
High risk patient → Multidisciplinary plan.

PPH management algorithm

International Expert Statement

Call for help early!

- ✓ Obstetrician/Midwife etc.
- ✓ Anaesthetist/Nurse etc.
- ✓ Surgeon/OR etc.

Initial assessment

- ✓ Breathing Oxygen 2 L/min
- ✓ Warming & monitoring
- ✓ Venous access x 2
- ✓ Analgesia
- ✓ Urinary catheter
- ✓ Estimate blood loss
- ✓ Verify blood type/cross
- ✓ Verify blood available
- ✓ Repeated haemoglobin
- ✓ Analyze clotting (LAB/POC)
- ✓ Inform patient +family

Transfer

- ✓ At any time, transfer to a higher level hospital if needed or for ICU admission.
- ✓ Alert transfer organization

Temporary measures

- ✓ Uterotonic drug
- ✓ Bimanual or Intrauterine balloon compression
- ✓ External aortic compression

Clinical symptoms

Bleeding volume

HR >100 bpm

Palor

>1000 mL

Syst BP <100mmHg

Ongoing bleeding

>1500mL

Dizziness

Massive bleeding

>2500mL

Coma

Massive bleeding

>4000mL

Bleeding control – treat the cause!

		Local measures to control bleeding			Rescue surgery
Uterine atony	Treat atony <i>Uterine massage</i>	Non-surgical <i>Bi-manual compression</i> <i>Balloon tamponade</i>	Surgical <i>Arterial ligation</i> <i>Surgical compression</i>	Embolization	Hysterectomy <i>Abdominal packing</i>
Uterotonic drugs					
First line	Oxytocin bolus 5-10 IU IV/IM →	Oxytocin infusion: 10-40 IE/500 mL crystalloid/hour			
Second line	Syntometrin 1 mL IM (500 micrograms ergometrine and 5 IU oxytocin)	Prostaglandins: Misoprostol Sublingual: 200-800µg	Ergometrin 0.2 mg IM	Sulprostone Infusion: 500 µg/1 hours	
Placental retention	Early manual removal or smooth curetage	Provide regional anesthesia in cases of haemodynamics stability. Prefer general anaesthesia in cases of prolonged surgical procedure or haemodynamic instability. Avoid inhaled anaesthetics (relaxes uterus)			
Genital track injury	Tears suture. haematoma evacuation				
Uterine rupture	Surgical suture → rescue hysterectomy				
Uterine inversion	Immediate manual replacement → laparotomy rescue hysterectomy				

Control of Coagulopathy - Circulation - Homeostasis

Monitor	Circulation <i>BP HR SpO² non-invasive</i>	Haemodynamics <i>A-line etc.</i>	Response to therapy <i>Central line (ScvO₂), CO-monitoring if available etc.</i>
Treat	Crystalloids 1000mL	Crystalloids 2000mL	Crystalloids 3000mL
Vasopressors (if needed)	Phenylephrine (HR> 100) → Ephedrine (HR < 100) →	Norepinephrine	Norepinephrine or epinephrine
Monitor → Treat	Hypocalcemia	Lactate - Acidosis	Hypothermia
Initiate	Tranexamic acid 1g IV Intraoperative Cell salvage (if available)		Repeat 1g IV in ongoing bleeding
Monitor →Treat	Haemoglobin (Hb.) (repeatedly) & clotting (repeat if needed)		
Transfusions (MTP)	RBC if Hb. < 7.0-8.0 g/d	Massive PPH → <u>Activate</u> Massive Transfusion Protocol → Transfuse RBC, plasma & platelets aiming at ratio 1:1: → Ensure fibrinogen levels are greater than 2 g/L	
Fibrinogen substitution if	Fibrinogen concentration < 2 g/L (or ROTEM FIBTEM A5 < 12 mm or TEG F11 MA < 14 mm) Fibrinogen concentrate 2-4 g or cryoprecipitate 5-10 mL/kg		

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Massive
uncontrollable

Akut transfusionspakke

Indhold

1. 5 SAG M
2. 5 FFP
3. 2 pool Trombocytter

Obs! Trombocytter gives straks!

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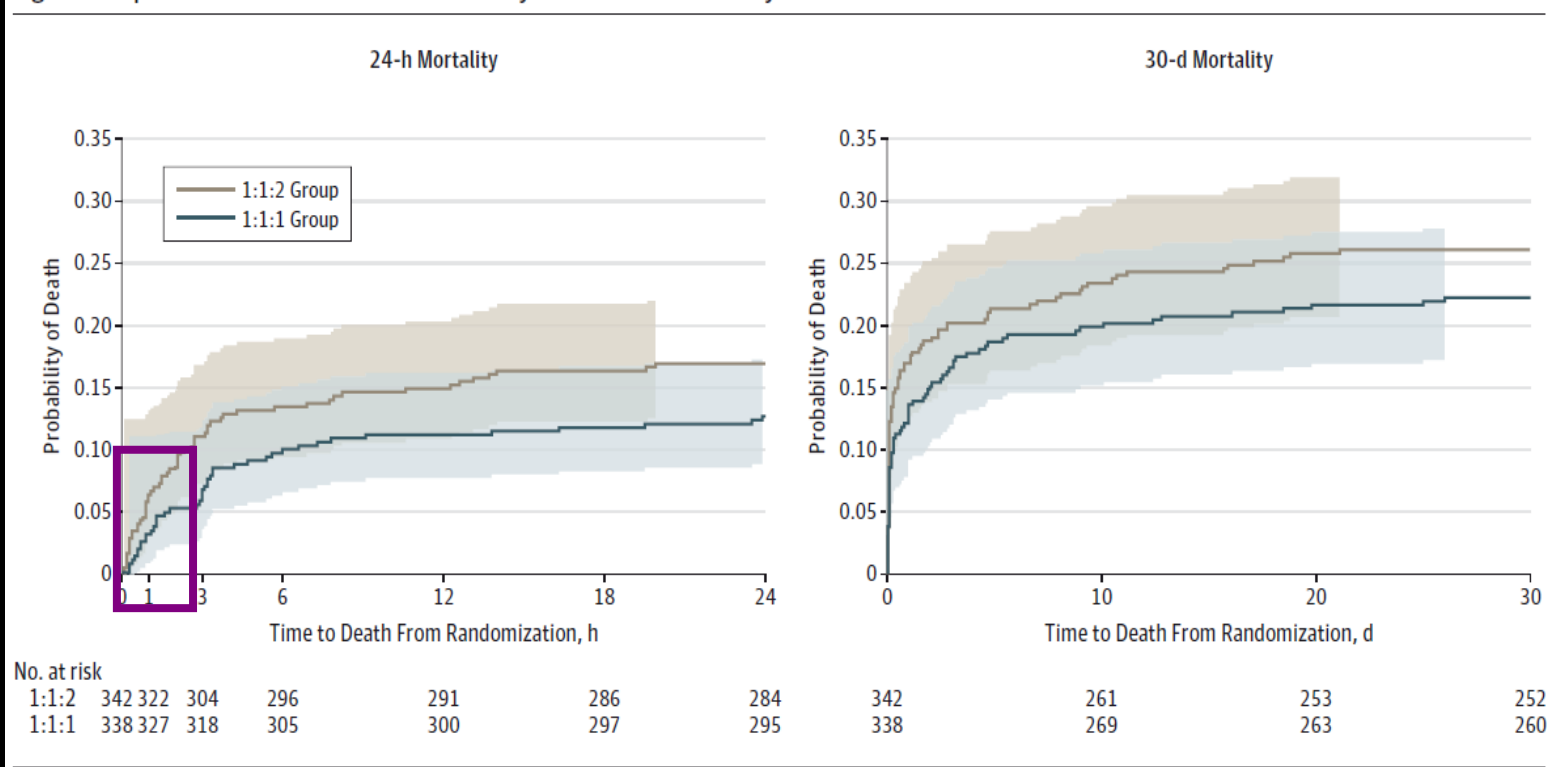


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Transfusion of Plasma, Platelets, and Red Blood Cells in a 1:1:1 vs a 1:1:2 Ratio and Mortality in Patients With Severe Trauma

The PROPPR Randomized Clinical Trial

Figure 2. Kaplan-Meier Failure Curves for Mortality at 24 Hours and 30 Days



An Observational Study of the Fresh Frozen Plasma: Red Blood Cell Ratio in Postpartum Hemorrhage

Pierre Pasquier, MD,* Etienne Gayat, MD, PhD,† Thibaut Rackelboom, MD,‡ Julien La Rosa, MD,‡ Abeer Tashkandi, MD,‡ Antoine Tesniere, MD, PhD,‡ Julie Ravinet, MD,§ Jean-Louis Vincent, MD, PhD,|| Vassilis Tsatsaris, MD, PhD,§ Yves Ozier, MD, PhD,* François Goffinet, MD, PhD,§ and Alexandre Mignon, MD, PhD,‡

ANESTHESIA & ANALGESIA

January 2013 • Volume 116 • Number 1

Table 3. Propensity Score Analysis in the 41 Patients Transfused with At Least 1 U Fresh Frozen Plasma

	Unweighted			Weighted		
	Low ratio	High ratio	P value	Low ratio	High ratio	P value
Red blood cells (transfused units)	12.7±9.0	5.5±3.1	0.08	8.5±6.5	5.9±3.3	0.19
Nadir platelets (giga/L)	57±33	91±49	0.04	73±28	87±49	0.29
Nadir fibrinogen (g/L)	1.1±0.4	1.2±0.9	0.57	1.2±0.4	1.2±0.9	0.75
Longest prothrombin time (s)	18.4±2.9	18.0±2.6	0.72	17.4±2.5	18.0±2.6	0.52

Red blood cell transfusion, nadir platelets and fibrinogen, and longest prothrombin time (expressed as mean ± SD) before and after weighting on the inverse probability of treatment.

Fewer advanced interventional procedures

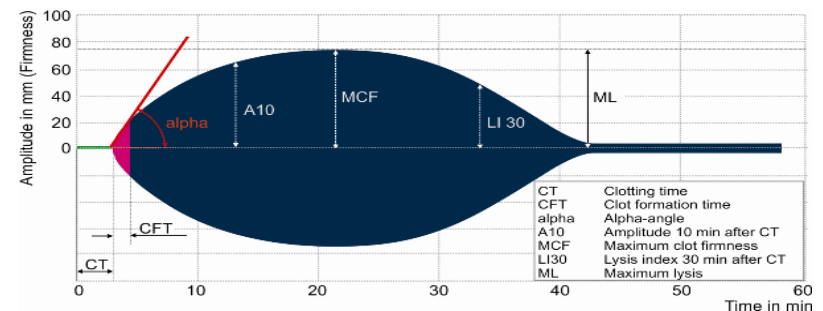
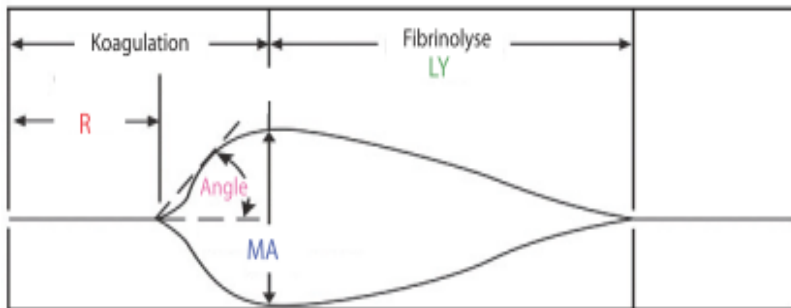
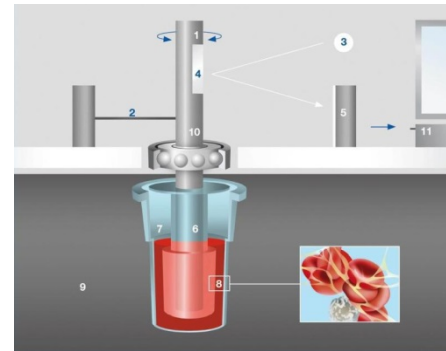
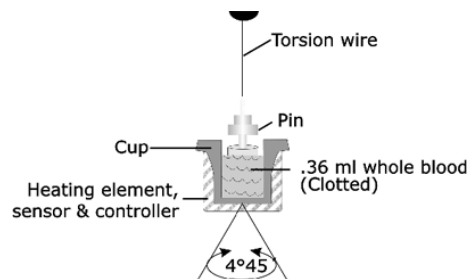
OR 1.25 [1.07–1.47]; P = 0.008 - the whole cohort

OR 1.58 [1.19–2.10]; P = 0.003 - patients > 1 FFP

Viscoelastic Haemostatic Assays (VHA)

TEG[®]/ROTEM[®]

- Whole blood analysis
- Measures the viscoelastic properties of the clot
- Multiple endpoints reflecting clot formation, strength & degradation
- Real-time (15 min.)



- Monitor & treat anaemia. Blood type/crossmatch.
- Active management of the third stage of labour.
- High risk patient → Multidisciplinary plan.

International Expert Statement



<p>Call for help early!</p> <ul style="list-style-type: none">✓ Obstetrician/Midwife etc.✓ Anaesthetist/Nurse etc.✓ Surgeon/OR etc. <p>Initial assessment</p> <ul style="list-style-type: none">✓ Breathing Oxygen 2 L/min✓ Warming & monitoring✓ Venous access x 2✓ Analgesia✓ Urinary catheter✓ Estimate blood loss✓ Verify blood type/cross✓ Verify blood available✓ Repeated haemoglobin✓ Analyze clotting (LAB/POC)✓ Inform patient +family <p>Transfer</p> <ul style="list-style-type: none">✓ At any time, transfer to a higher level hospital if needed or for ICU admission.✓ Alert transfer organization <p>Temporary measures</p> <ul style="list-style-type: none">✓ Uterotonic drug✓ Bimanual or Intrauterine balloon compression✓ External aortic compression	<p>Clinical signs & symptoms</p> <p>Bleeding volume</p> <div><div></div><div></div><div></div></div> <p>HR >100 bpm Palor >1000 mL</p> <p>Syst BP<100mmHg Ongoing bleeding >1500mL</p> <p>Dizziness Massive bleeding >2500mL</p> <p>Coma Massive bleeding >4000mL</p>	<p>Bleeding control – treat the cause!</p>	<p>Uterine atony Treat atony <i>Uterine massage</i></p> <p>Uterotonic drugs</p> <p>First line Oxytocin bolus 5-10 IU IV/IM → Oxytocin infusion: 10-40 IE/500 mL crystalloid/hour</p> <p>Second line Syntometrin 1 mL IM (500 micrograms ergometrine and 5 IU oxytocin) Ergometrin 0.2 mg IM</p> <p>Prostaglandins: Misoprostol Sublingual: 200-800µg Sulprostone Infusion: 500 µg/1 hours</p>	<p>Local measures to control bleeding</p> <p>Non-surgical <i>Bi-manual compression</i> <i>Balloon tamponade</i></p> <p>Surgical <i>Arterial ligation</i> <i>Surgical compression</i></p> <p>Embolization</p>	<p>Rescue surgery <i>Hysterectomy</i> <i>Abdominal packing</i></p>
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My points

- PPH is a worldwide problem
- PPH treatment should be initiated early (500 mL) and by a **multidisciplinary team – in stepwise management**
- Algorithms can improve **outcome**