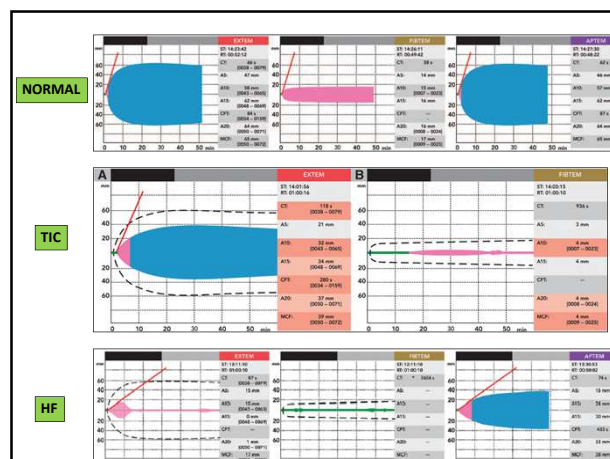
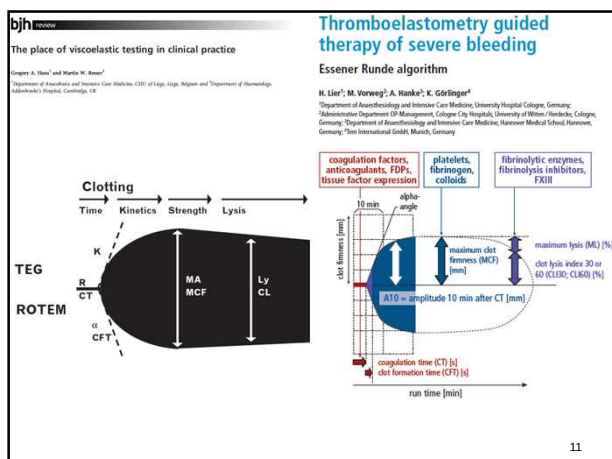
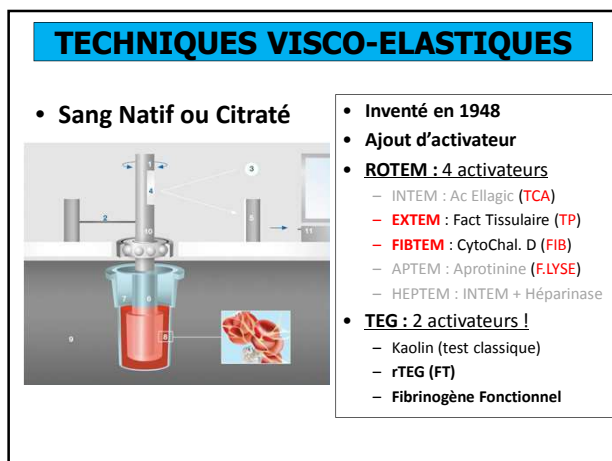
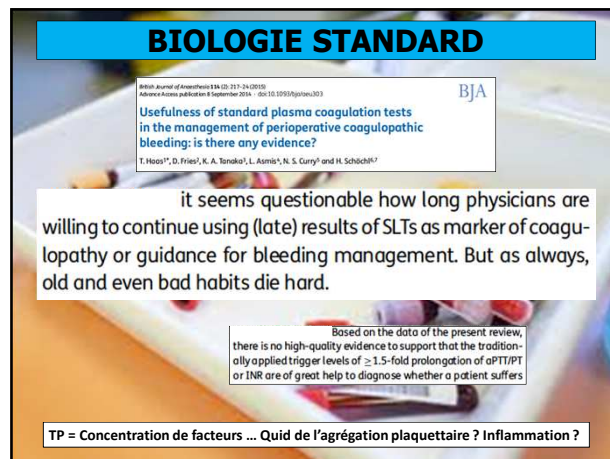
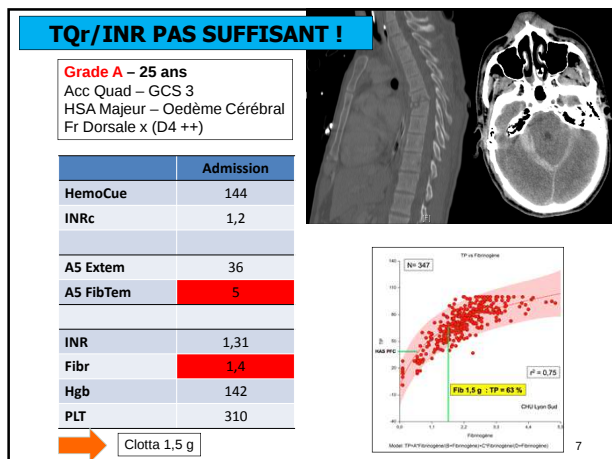
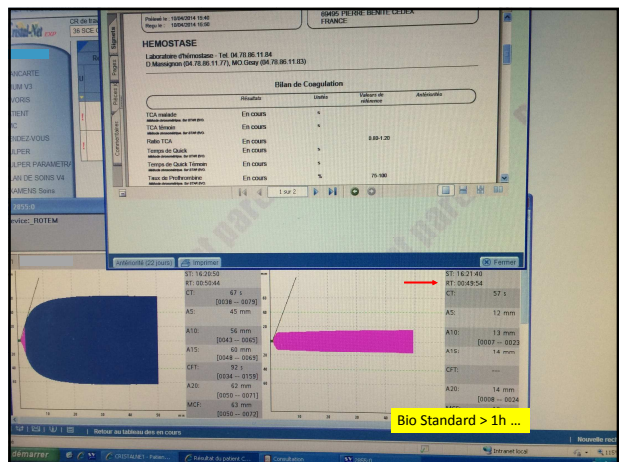
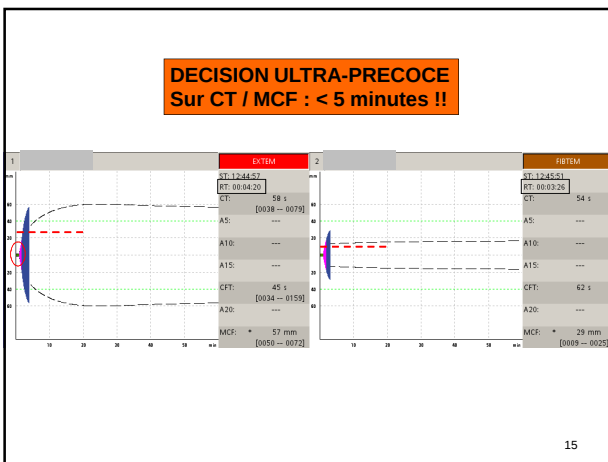
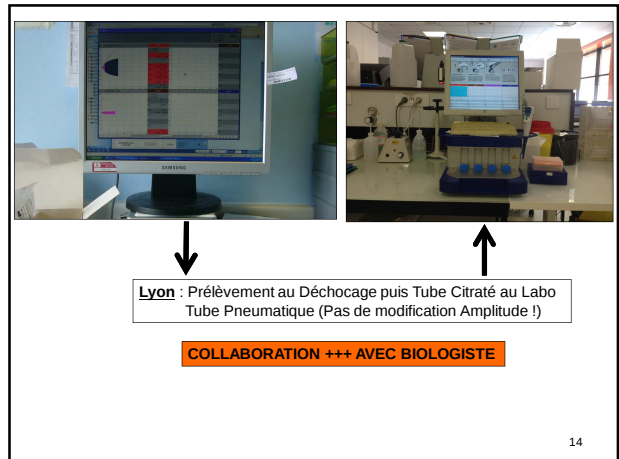
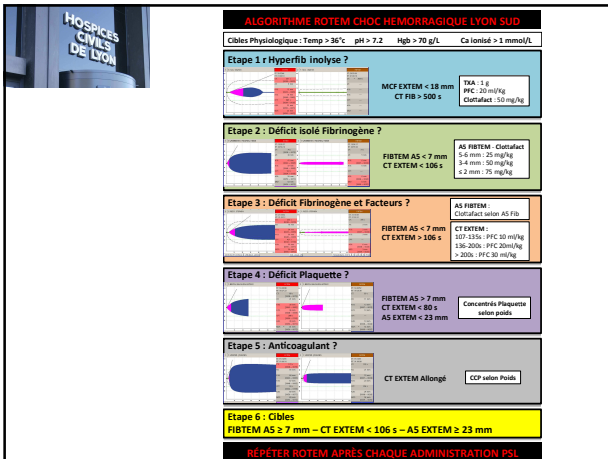






ADMISSION

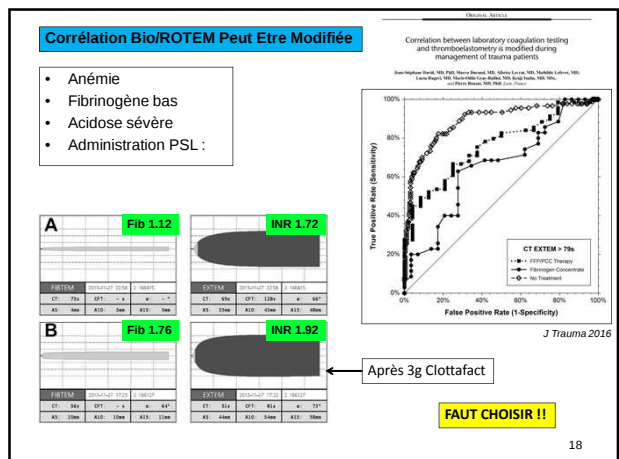
Table 3 Correlation (r) between ROTEM® and standard coagulation

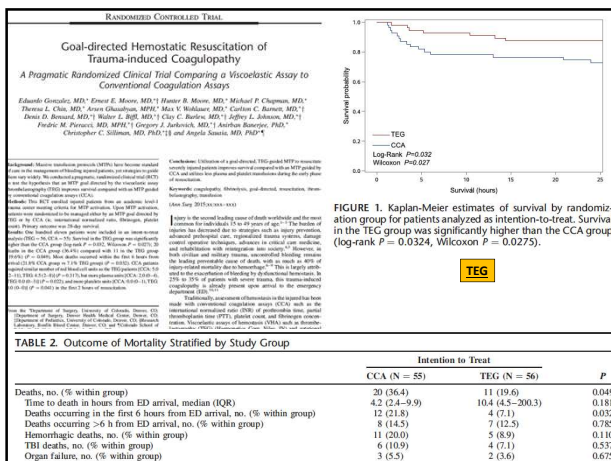
	Prothrombin time	Activated partial thromboplastin time	Fibrinogen	Platelets
EXTREM				
CT	0.53*	(-)	0.40*	(-)
CFT	0.62*	(-)	(-)	0.33*
CA ₁₅	0.66*	(-)	0.60*	0.56*
INTREM				
CT	(-)	0.47*	(-)	(-)
CFT	(-)	0.91*	(-)	0.32*
CA ₁₅	(-)	0.70*	0.66*	0.57*
FIBTEM				
CA ₁₅	(-)	(-)	0.85*	(-)

Trauma : Tauber et al. BJA 2011, Hagemo JS et al. Crit Care 2015

Transfusion values

ROTEM® Cutoff values	Sensitivity % (95% CI)	Specificity % (95% CI)	PPV % (95% CI)	NPV % (95% CI)	AUC
Prothrombin time > 15	87 (72-87)	100 (99-100)	100 (83-100)	99 (98-99)	0.98
APTT > 1.5 of control value	100 (84-100)	74 (73-74)	23 (19-23)	100 (98-100)	0.94
Fibrinogen < 1 g/L	91 (72-93)	85 (84-86)	55 (45-60)	99 (97-100)	0.96
Platelets < 50 × 10 ⁹ L ⁻¹	100 (71-100)	83 (82-83)	17 (12-17)	100 (98-100)	0.92





TEG / ROTEM : Littérature ?

► Rapide que Bio
 ► Reflète mieux réalité Hémostase
 ► Réduction Utilisation des PSL
 ► Baisse Coûts lié à la transfusion
 ► Baisse LOS
 ► Amélioration Mortalité

Donc le ROTEM ça marche ! Mais ...
 ROTEM ?
 Concentrés de Facteurs ?

David JS et al. Crit Care 2011

Trauma Bleeding Management: The Concept of Goal-Directed Primary Care
 Herbert Schöchl, MD†† and Christoph J. Schilling, MD†

Fixed ratio versus goal-directed therapy in trauma

Herbert Schöchl^{1,2}, Marc Mangel³, and Wolfgang Spillner⁴

Purpose of review: This article compares the strategy of a fixed ratio versus goal-directed therapy in trauma.

Recent findings: Current data suggest that an early and high ratio of plasma and platelet concentrates to red blood cells (RBCs) is associated with improved outcomes. However, the optimal ratio is still under discussion. However, using a fixed ratio of 1:1:1 (plasma:platelets:RBCs) is a reasonable strategy for the management of trauma patients.

Conclusion: The use of a fixed ratio of 1:1:1 (plasma:platelets:RBCs) is a reasonable strategy for the management of trauma patients. However, the optimal ratio is still under discussion. However, using a fixed ratio of 1:1:1 (plasma:platelets:RBCs) is a reasonable strategy for the management of trauma patients.

Keywords: goal-directed therapy, viscoelastic coagulation, hemostatic concentrates, coagulopathy, hemostatic therapy.

INTRODUCTION
 Despite substantial improvement in acute trauma care, hemorrhagic shock remains the primary cause of preventable death [1,2]. Most of these deaths occur within 1 h of hospital admission [3]. Thus, many trauma centers implement massive transfusion protocols to rapidly identify patients at risk for massive transfusion and administer massive transfusion agents without substantial time delay [4,5]. Recent data suggest that early transfusion of high ratios of plasma and platelet concentrates, particularly in a 1:1:1 ratio, is associated with improved outcomes in patients with severe bleeding [6,7].

Some European trauma units have established a more targeted approach to their coagulopathy management. Viscoelastic tests (VETs), most commonly, rotational thromboelastometry (ROTEM), have been used to guide the administration of hemostatic concentrates (HCs), including platelet concentrates (PCs), cryoprecipitate (Cryo), and fibrinogen (Fib). However, the use of VETs to guide the administration of HC is still under discussion. However, using a fixed ratio of 1:1:1 (plasma:platelets:RBCs) is a reasonable strategy for the management of trauma patients.

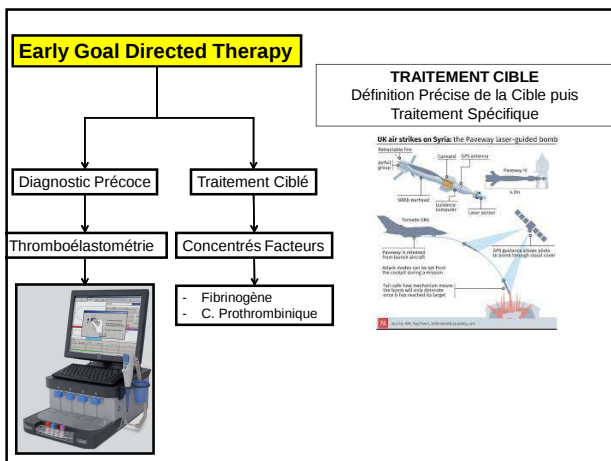
FIXED RATIO COAGULATION THERAPY
 The concept of damage-control resuscitation has been adapted to many military and civilian trauma centers [14,15], and is essentially based on restricted fluid therapy, massive transfusion, and urgent transport to a definitive care facility [16]. Early and aggressive transfusion of plasma has been associated with improved outcomes in patients with severe bleeding [6,7].

CONCLUSION
 The use of a fixed ratio of 1:1:1 (plasma:platelets:RBCs) is a reasonable strategy for the management of trauma patients. However, the optimal ratio is still under discussion. However, using a fixed ratio of 1:1:1 (plasma:platelets:RBCs) is a reasonable strategy for the management of trauma patients.

STRATEGIE DE TRAITEMENT AU PFC

TRAITEMENT À L'AVEUGLE
 « L'Abondance de la Mitraille compense l'Imprécision du Tir »
 Michel Ney, Maréchal de France (1769-1815)

En Attendant la Biologie ...

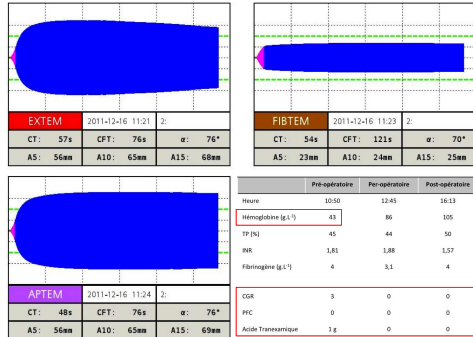


ET EN DEHORS DE LA TRAUMATO ?

NOUVEAU : LE ROBOT CHIRURGIEN

ETAT DE CHOC POST OPERATOIRE

Bricker J12 PAS 75 mmHg, FC 110, Hgb 52 gr (HemoCue) **Que faites vous ?**



31

HÉMORRAGIE DIGESTIVE

32

Hémorragie Digestive Grave

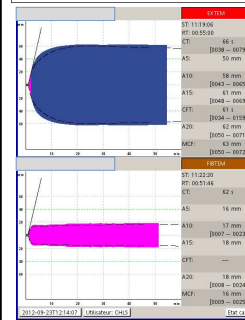
Pas de publication sur Hgie Digestive !
Transplantation hépatique : x publications
Roullet S et al. Liver Transplant 2015

Madame Paulette L, 57 ans, antillaise et accro au rhum ...
En métropole depuis 15 J ...
Adressée au déchochage pour Hémorragie Digestive grave
HemoCue à l'admission : 2,5 g/dL
INR (CoaguChek) : 3,7
Hémoglobine : 2,5 g/dL / Plaquette : 197 G/L
PAS 90 mmHg, FC 105 batt.min⁻¹

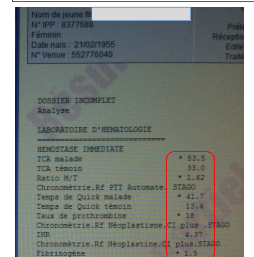
QUE FAITES VOUS ?

Hémorragie Digestive Grave

4 CGR (2 O neg et 2 iso groupes)
Exacyl 1 g
Je fait le RoTem !!



4 CGR (2 O neg et 2 iso groupes)
Exacyl 1 g
Si pas de RoTem : PFC ????



PSE Sandostatine
Erythro
Ligature VO sous AG

HÉMORRAGIE DU POST PARTUM

Hémorragie du Post Partum

- Un certain nombre de Publication
- Situation potentiellement à très haut risque !
- Contexte émotionnel ++
- Coagulopathie qui peut apparaître très vite (> 1500-2000 ml)
- Indispensable d'avoir un moyen de monitoring moderne
- Eviter Transfusion inutile / Consommation de Fibrinogène

BJA

BJA

OBSTETRICS

Viscoelastic-guided early fibrinogen concentrate replacement during postpartum haemorrhage: OBS2, a double-blind randomized controlled trial

P. W. Collins¹, R. Carrington-John², D. Bruynseels³, S. Mulla⁴, J. Dick⁵, C. Storr⁶, A. D. Weeks⁷, J. Sandford⁸, N. Awer⁹, J. Thompson¹⁰, R. Hoof¹¹, J. Heff¹², J. E. Hall¹³ and R. E. Collins¹⁴ on behalf of the OBS2 study team¹

OBSTETRICS

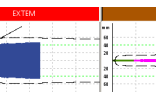
Viscoelasticometry guided fresh frozen plasma infusion for postpartum haemorrhage: OBS2, an observational study

P. W. Collins¹, R. Carrington-John², D. Bruynseels³, S. Mulla⁴, J. Dick⁵, C. Storr⁶, A. D. Weeks⁷, J. Sandford⁸, N. Awer⁹, J. Thompson¹⁰, R. Hoof¹¹, J. Heff¹², J. E. Hall¹³ and R. E. Collins¹⁴ on behalf of the OBS2 study team¹

[illegible]

Hémorragie du Post Partum

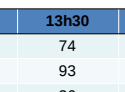
16 Octobre – Maternité Lyon Sud
 Obèse – Toxémie gravidique
 Césarienne – X parités utérus cicatriciel
 Saignement +++ 30-60 min après en SSP!
 Hémoglobine : 7,5 g/dL – Nalador / Exacyl → ROTEM !



Les tracés TEMT (à gauche) et ROTEM (à droite) illustrent une coagulation anormale. Le TEMT montre un temps de thrombine prolongé et une zone de fibrinolyse importante. Le ROTEM montre une faible amplitude de la phase alpha (A) et une phase gamma (G) prolongée, indiquant une déficience en fibrinogène et/ou en plaquettes.

	13h30	14:32
Hgb	74	67
Pla _q	93	94
TP	36	75
TQr	1,82	1,16
Fibrinogène	1,5	3,2

+ Ballon de Bakri → Stop Saignement
 Annulation Embolisation



SOS BAKRI
TAMPONADE
BALLOON
CATHETER

Hémorragie du Post Partum

```

graph TD
    Start([Blood test > 1500ml or Stage 2 activated  
immediate transfusion]) --> TakeB[TAKE BLOODS  
FBC, U&E, lactate, urea, pH, PT, APTT or fibrinogen, platelet count]
    TakeB --> Rotem[ROTEM test  
APTT, FIB, FIB(2), FIB(4), FIB(6)]
    Rotem --> Ongoing{ONGOING BLEEDING or CLINICAL CONCERN?}
    Ongoing -- NO --> NoTransfuse[NO blood products required]
    Ongoing -- YES --> Transfuse[Only transfuse coagulation products if patient is bleeding]
    Transfuse --> ReviewFFP[REVIEW ROTEM A1  
APTT > 1.5 x normal  
Give FFP if APTT > 1.5 x normal]
    ReviewFFP --> ReviewPlatelets[REVIEW ROTEM A2  
Platelets < 100 x 109/L  
Give Platelets if platelets < 100 x 109/L]
    ReviewPlatelets --> ReviewCryo[REVIEW ROTEM A3  
Fibrinogen < 2.0g/L  
Give Cryo if Fibrinogen < 2.0g/L]
    ReviewCryo --> AnyFurther{ANY OF THE FOLLOWING?  
Clinical concern  
Significant further bleeding  
No further blood loss  
> 500ml further blood loss  
Clinical concern}
    AnyFurther -- YES --> Transfuse
    AnyFurther -- NO --> End([End])
  
```

OBSCYMRU
Oxford Brookes School of Clinical Medicine
Royal College of Obstetricians and Gynaecologists
Royal College of Anaesthetists

ROTEM Protocol
(For use in postpartum haemorrhage)

OPTIMISE PATIENT
Temp >36°C, Hb >80g/L, pH >7.2, Ionised Ca²⁺ >0.5mmol/L
REVIEW OTHER CAUSES OF BLEEDING
If coagulation normal, unstable abdomen & anaesthetic cause

ANY OF THE FOLLOWING?
Clinical concern
Significant further bleeding
No further blood loss
> 500ml further blood loss
Clinical concern

IF ROTEM A1 is raised after transfusing FFP, consider ROTEM C1 and FBC

REVIEW ROTEM C1
APTT > 1.5 x normal
Give FFP if APTT > 1.5 x normal

REVIEW ROTEM A2
Platelets < 100 x 10⁹/L
Give Platelets if platelets < 100 x 10⁹/L

REVIEW ROTEM A3
Fibrinogen < 2.0g/L
Give Cryo if Fibrinogen < 2.0g/L

IF you have any concerns discuss with haematologist
Haematologist
Anaesthetist
Obstetrician
Consultant

DO NOT
Do not routinely blood effect of warfarin
Do not routinely blood effect of aspirin
Do not routinely blood effect of clopidogrel

Collins PW et al. Int J Obst Anesthesia 2019

CONCLUSION

- Très difficile de diagnostiquer coagulopathie / Clinique
- Biologie déportée
- Taux de facteur (Bio Standard) pas suffisant
- Techniques visco-élastique
- Economie PSL / Baisse des couts / Baisse TM
- Amélioration pronostic
- Avec les Biologistes +++

IL EST TEMPS D'ÉVOLUER !

