

Total transfusion requirements in hip fracture patients from emergency department to geriatrics: retrospective validation of a restrictive regimen. The UPOG-TRF1 study



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I have no potential conflict of interest to report

CONTEXT

2009 : UPOG's creation
 Boddaert J, PLoS ONE 2014

2011 : FOCUS study, Carson et al.

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Liberal or Restrictive Transfusion in High-Risk Patients after Hip Surgery

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 Bernard R. Chaitman, M.D., George G. Rhoads, M.D., M.P.H., George Nemo, Ph.D., Karen Dragert, R.N.,
 Lauren Beaupre, P.T., Ph.D., Kevin Hildebrand, M.D., William Macaulay, M.D., Courtland Lewis, M.D.,
 Donald Richard Cook, B.M.Sc., M.D., Gwendolyn Dobbin, C.C.R.P., Khwaja J. Zakriya, M.D., Fred S. Apple, Ph.D.,
 Rebecca A. Horney, B.A., and Jay Magaziner, Ph.D., M.S.Hyg., for the FOCUS Investigators*

2012 : adaptation of transfusion practice to the entire unit

MATERIAL AND METHODS

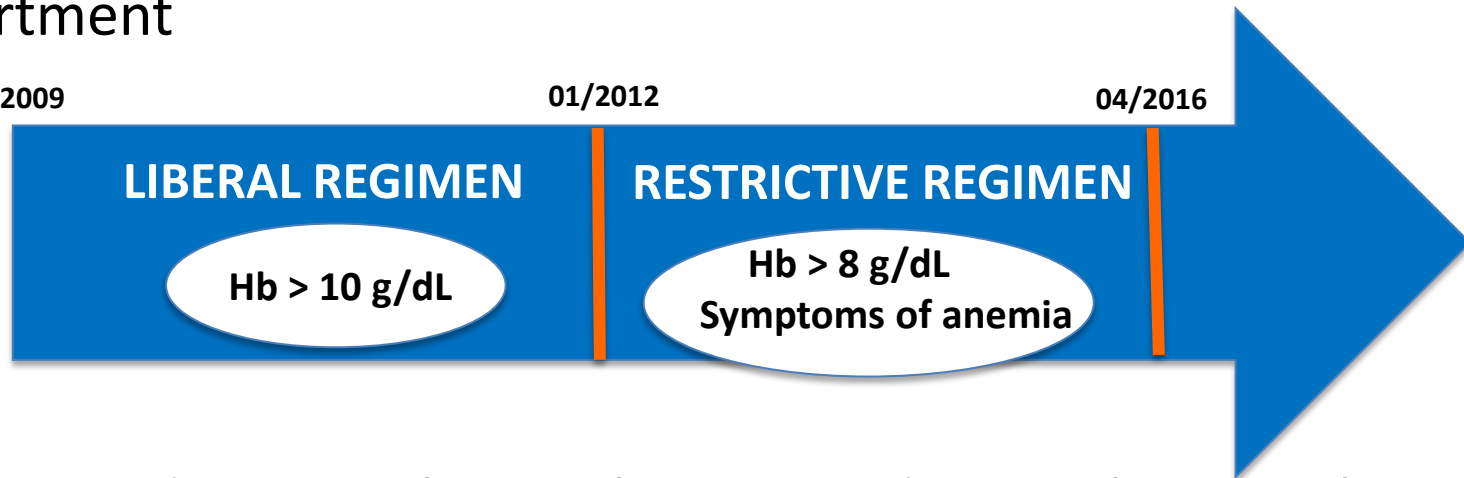
→ retrospective cohorte study

→ All patients > 70 years old admitted for HF to our emergency department

06/2009

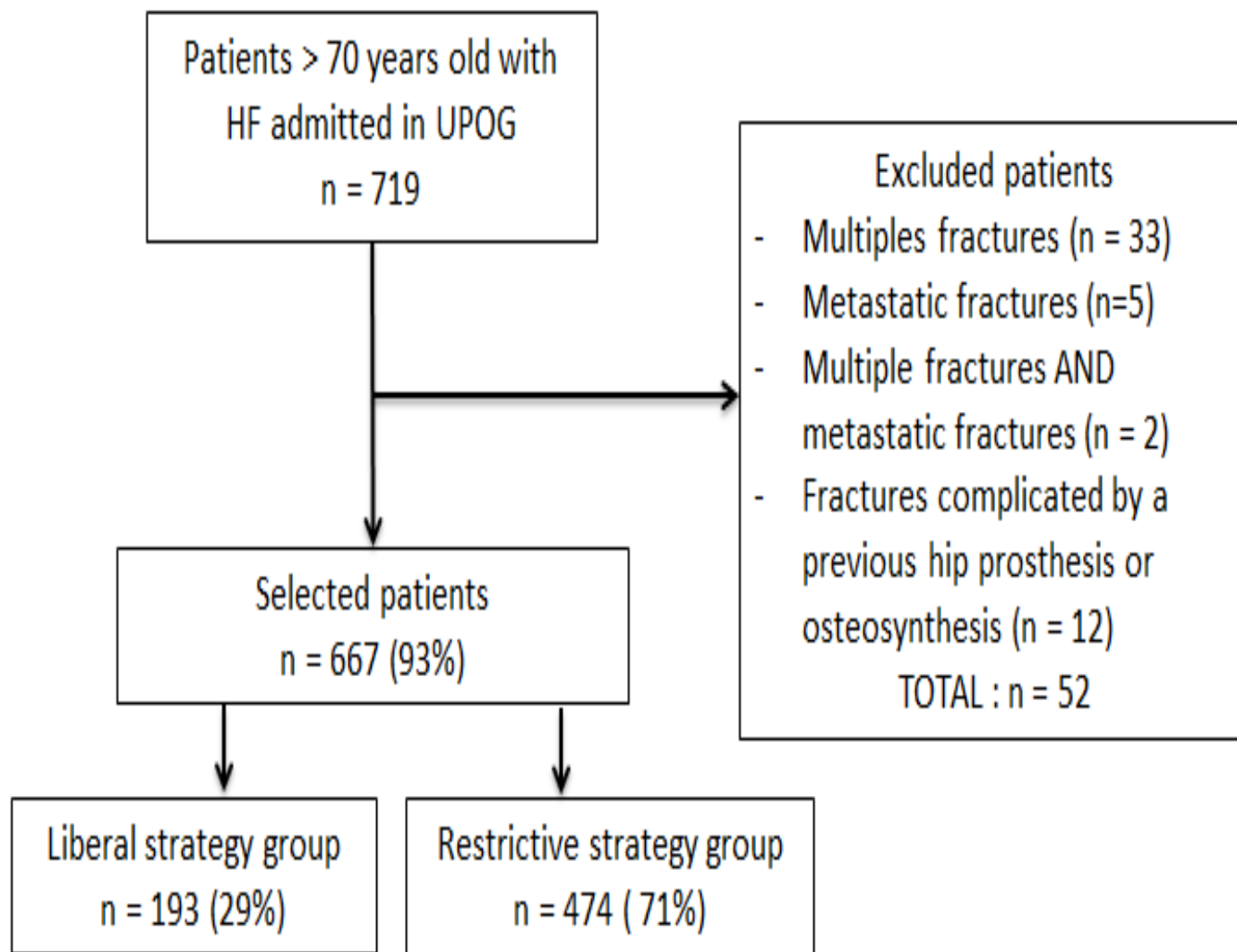
01/2012

04/2016



- ★ Primary endpoint: in-hospital acute cardiovascular complications (acute heart failure, acute coronary syndrome, acute atrial fibrillation or stroke).
- ★ Secondary endpoints: in-hospital and 6-month mortality, in hospital infections, total number of transfusions and number of red blood cell units transfused.

RESULTS (1) : flow chart



RESULTS (2) : Characteristics of patients

	All patients (N=667)	Liberal (N=193)	Restrictive (N=474)	P value
Age (years)	86 ± 6	86 ± 6	86 ± 6	0.25
Female	513 (77%)	138 (72)	375 (79)	0.03*
Medical history				
CIRS 52	9 [6 - 12]	8 [6 - 11]	9 [7 - 12]	< 0.01*
Stroke	112 (17)	40 (21)	72 (15)	0.08
Hypertension	467 (70)	128 (66)	339 (72)	0.18
Diabetes	81 (12)	30 (16)	51 (11)	0.09
Atrial fibrillation	183 (27)	49 (25)	134 (28)	0.44
Coronary artery disease	122 (18)	31 (16)	91 (19)	0.34
Heart failure	118 (18)	36 (19)	82 (17)	0.68
Autonomy				
ADL	5 [3 - 6]	5 [3 - 6]	5 [3 - 6]	0.11
Living in institution	106 (16)	22 (11)	84 (18)	0.04*
Living at home with assistance	530 (79)	140 (73)	390 (82)	< 0.01*
Haemoglobin				
Preoperative haemoglobin <10g.dL ⁻¹	57 (9)	21 (11)	36 (8)	0.17
Min. in-hospital haemoglobin (g.dL ⁻¹)	9.2 ± 1.4	9.1 ± 1.3	9.3 ± 1.5	0.07

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RESULTS (3): Outcomes

	All patients (N=667)	Liberal (N=193)	Restrictive (N=474)	P value
In hospital Post-operative complications				
Cardiovascular complications	164 (25)	66 (34)	98 (21)	< 0.01*
Atrial fibrillation	59 (9)	21 (11)	38 (8)	0.23
Acute coronary syndrome	69 (10)	33 (17)	36 (8)	< 0.01*
Acute heart failure	85 (13)	37 (19)	48 (10)	< 0.01*
Stroke	6 (1)	2 (1)	4 (1)	0.81

34 vs 21%, p<0.01, Odds Ratio adjusted: 0.45; 95% CI [0.31 – 0.67], p<0.001

RESULTS (4): Outcomes

In hospital Post-operative complications				
Infection	120 (18)	37 (19)	83 (18)	0.61
In-hospital mortality	23 (3)	6 (3)	17 (4)	0.75
Transfusion				
Pre and per-operative transfusion	169 (25)	64 (33)	105 (22)	< 0.01*
UPOG transfusion	244 (37)	96 (50)	148 (31)	< 0.01*
In-hospital transfusion	347 (52)	126 (65)	222 (47)	< 0.01*
In-hospital Total packed RBC per patient	1 [0 – 2]	2 [0 – 2]	0 [0 – 2]	< 0.01*
In-rehabilitation transfusion	105 (16)	18 (9)	87 (18)	< 0.01*
Total transfusion (hospital and rehabilitation)	396 (59)	133 (69)	263 (55)	< 0.01*
Total packed RBC per patient (hospital and rehabilitation)	1 [0 – 2]	2 [0 – 3]	1 [0 – 2]	< 0.01*
After the hospitalization				
6-month-mortality (MD = 4)	106 (16)	31 (16)	75 (16)	0.92

RESULTS (4): Outcomes

In hospital Post-operative complications

Infection	120 (18)	37 (19)	83 (18)	0.61
In-hospital mortality	23 (3)	6 (3)	17 (4)	0.75

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DISCUSSION

Limits of the study:

Retrospective study

Operating room

Monocentre study

Strengths of the study :

Representative population of HF

All transfusions reported

CONCLUSION

Our study supports the restrictive transfusion regimen for consecutive elderly patients admitted with hip fracture leading to :

- reduction in cardiovascular complications
- reduction both packed red blood cells and proportion of patients transfused
- without significant modification of long term mortality