The Implementation of Patient Blood Management

- A survey of European practice -

Preliminary results - *Example of the United Kingdom*

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Objective

Approximately **40% of patients having cardiac surgery will have a blood transfusion**. Whilst this may be life-saving there is also a morbidity and mortality associated with it. In recent years **Patient Blood Management** (PBM) has evolved to integrate peri operative haemostasis care in an attempt to drive down transfusion however it has evolved in different ways across the different health care systems across Europe[1]. This has led to **discrepancies between guidelines**[2,3] and actual clinical practice across countries. The objective of this study is to **understand how PBM strategies differ throughout Europe**.

Methods

A 10-minute long online survey was developed with **a group of European anesthesiologists**. Between January and August 2019, the survey was disseminated by the National and European scientific societies of Austria, Finland, France, Germany, Ireland, Switzerland, the Netherlands and the United Kingdom. Its first seven questions provide **epidemiological data** about transfusion need and local patient blood management practice depending of guidelines. Following this, two **clinical cases are presented,** and questions are asked about how these patients would be managed by the respondent.

These preliminary results picture the local practices in the **UK**, where the coverage objective of 70% of centers were reached in August 2019.

Responders profile

100% **of the cardiac centers participated**
(% = 32 / 32)

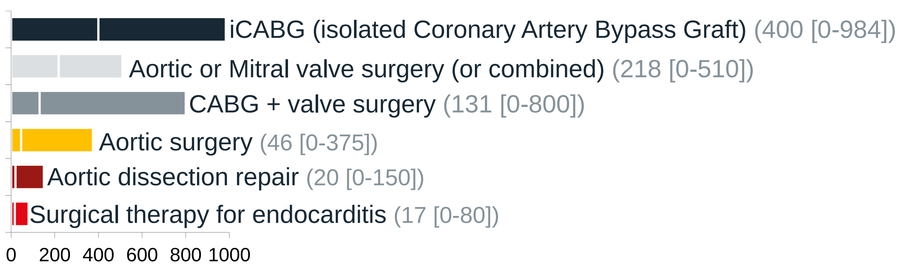
90% **of anesthesiologists among responders**
(% = 29 / 32)

Epidemiological data

Characteristic of cardiac procedures with bypass

Median of answers: 24 [23-29]

Number of procedures /year/center (median [min-max]): 900 [0-2105][4]



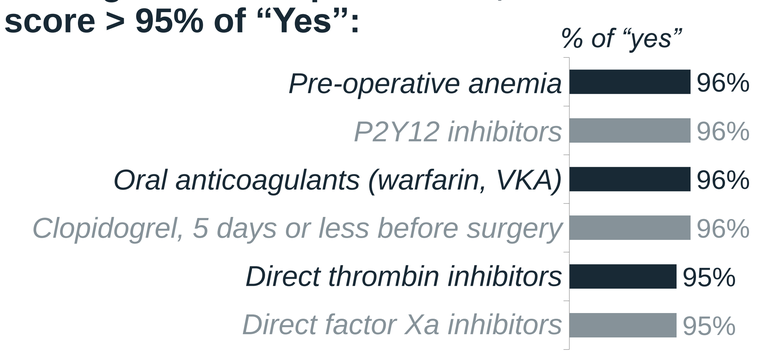
Patient blood management

57% **of the hospitals have PBM guidelines**
(n=14, 12 md)

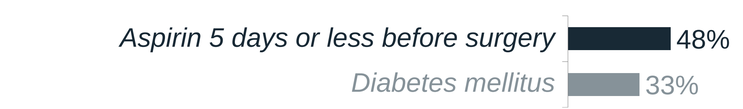
34% **of the patients receive an allogenic blood transfusion during or after surgery**
(n=12, 12 md; mean (SEM): 34% (5%); median [min-max]: 40% [0-50])

Patient's parameters associated with an increased risk of bleeding or transfusion during cardiac surgery with bypass (n = 23, 9 md)

Among a list of 20 parameters, 6 have a score > 95% of "Yes":



Only 2 have a score < 50% of "Yes".



Clinical cases

Mrs. A:
Female, 70-year-old, 1m65 and 65 kg
Surgical procedure: **iCABG**

Treatments: enalapril (hypertension), methotrexate sub-cutaneous injection (rheumatoid arthritis), bisoprolol + aspirin (stable angina)

Lab tests: Hb 115 g/L; CRP 40 mg/L; Transferin saturation coefficient 15%, ferritin 160 ng/ml; Creatinine 180 micromol/L (2,045mg/dL); platelets 150 giga/l; fibrinogen 2,5 g/L; PT 89%; aPTT 1.0.

Therapeutic strategies *(n = 19, 13 md)*[4]

Pre-operative PBM	Iron	68.4% (13 users)
Peri/intraoperative PBM techniques	Cell salvage	89.5% (19)
Peri/intraoperative bypass strategies	Normothermia	47.4% (9)
	Autologous priming	47.4% (9)
Intraoperative anticoagulants	Heparin/protamin	100.0% (19)
Other products	Anti-fibrinolytics	78.9% (15)
	Red-blood cells	52.6% (10)

Mr. B:
Male, 60-year-old, 1m78 and 70 kg
Surgical procedure: **Bentall procedure with valvular prosthesis**
Pathology: severe ascending aortic dissection repair
Comorbidity: type II diabetes

Therapeutic strategies *(n = 17 , 15 md)*[4]

Pre-operative biological testing	Prothrombin time (PT)	87.5% (12 users)
	Activated partial thromboplastin time (aPTT)	75.0% (10)
Pre-operative PBM	None	88.2% (15)
Peri/intraoperative PBM techniques	Topical haemostatic agents	64.7% (11)
Peri/intraoperative bypass strategies	Autologous priming	47.1% (8)
	None	41.2% (7)
Intraoperative anticoagulants	Heparin/protamin	70.6% (12)
Antifibrinolytic drugs	Tranexamic acid (TXA)	62.5% (10)
	Aprotinin	43.8% (7)

Experience with antifibrinolytics (n = 16, 16 md)

94% **of responders use TXA in the cited cardiac procedures**
(Median [min-max]: 94% [63-100])

100 % **of responders know about aprotinin as antifibrinolytic drug and have already used it ***

* Aprotinin was considered in patients with high risk of bleeding factors (n =13)

Conclusion - Discussion

In the **UK**, isolated CABG is the main procedure using bypass and the majority of the hospitals have PBM guidelines.
Almost 1/3 of patients are transfused. The main risk factors are pre-operative anemia and antiplatelet/anticoagulant therapies.
Antifibrinolytics (tranexamic acid and aprotinin) are a main part of the therapeutic strategies
Final results will serve as a basis of discussion for the European working group of experts involved in PBM.

[1] *WHO | WHO Global Forum for Blood Safety: Patient blood management. WHO Available at: https://www.who.int/bloodsafety/events/gfbs_01_pbm/en/*
[2] *Pagano, D. et al. 2017 EACTS/EACTA Guidelines on patient blood management for adult cardiac surgery. European Journal of Cardio-Thoracic Surgery 53, 79–111 (2018)*
[3] *Mueller, M. M. et al. Patient Blood Management: Recommendations From the 2018 Frankfurt Consensus Conference. JAMA 321, 983 (2019)*
[4] *The answers are not mutually exclusive and therefore their sum could exceed the total number of procedures or 100%.*

¤ *Trajectory board members on behalf of* NORDIC PHARMA