

Supplementary Material for analysis of Anti-Xa and APTTr anticoagulation on VV-ECMO patients

Teddy Tun Win HLA on behalf of the study group

'r Sys.Date()'

Contents

1. OBJECTIVE

Outcome variables

1. Bleeding or thrombotic events(BTE) 1a. any BTE 1b. only hemorrhagic complications 1c. only thrombotic complications
2. ECMO circuit changes
3. Heparin Prescription 3a. cumulative dose of heparin 3b. heparin prescription changes
4. Blood products consumption

Calculated variables

1. Time in Therapeutic Range (Rosendaal Method)
2. Variability in Anticoagulation (Fihn's method)

3. DATA SOURCE

[refer to Barnie's]

- Electronic health records data extraction from GSTT systems using ECMO pump speed as definition of cases.
- Complications individually reviewed where relevant.
- Electronic health records accessed through GDPR compliant system and saved in encrypted work spaces.
- All investigation results (CT imaging, blood results) in between ECMO run times are extracted.

3. TRUTHS

3.1. Assumptions

Assumption 1 : each patients receive only 1 ECMO run

- verified through discussion with clinicians at regular mortality and morbidity meeting

Assumption 2: all ECMO pump speed run times are accurate with automatic entry to EHR system

- verified through daily clinical use
- Thus, this time period is used as a basis to calculate other times in relation.

Assumption 3: As mandated legally by NHS Blood and Transfusion, all blood products transfusion are documented.

- This was used to verify and cross-check ECMO run times and related complications.

3.2. Definitions

Outcome variables

Bleeding and Thrombotic Complications

Any relevant bleeding and thrombotic complications are recorded and nearest most accurate time period extracted.

This does not include complications sustained through ECMO cannulation process nor incurred through retrieval process.

In addition, relevant complications identified incidentally through cross sectional imaging are also supplemented.

EOLIA definition of bleeding complications restrict to bleeding events requiring transfusion of blood products.

Our definition of bleeding complication is more broad. This is to allow analysis at granular scale.

We separately analyse blood products transfusion.

ECMO circuit changes

Similarly, documentation of ECMO circuit changes and rationales were extracted.

Heparin administrations

All administration of heparin prescribed under different regimes were extracted and relevant units obtained.

Regimes	Description	Units
1	Heparin	units per hour
2	Heparin ECMO Xa IV Infusion	units per kilogram per hour
3	Heparin IV injection	units