Cardiogenic shock due to antibody-mediated rejection is associated with high short-term mortality after heart transplantation

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Disclosure Statement of Financial Interest

I currently have, or have had over the last two years, an affiliation or financial interests or interests of any order with a company or I receive compensation or fees or research grants with a commercial company:

Speaker's name:

☑️ I do not have any potential conflict of interest
AMR
Antibody-mediated rejection

DSA
Donor-Specific Antibodies

Endothelium + + +

Treatment
…
Background - Prognosis stratification

Prognosis of **AMR** with cardiogenic shock?

J Heart Lung Transplant 2016;35:1059–1066
Methods

Aim
To evaluate the prognosis of patients with biopsy proven AMR complicated by cardiogenic shock.

Method
Single center retrospective observational study (Pitié-Salpêtrière)

Primary endpoint
All cause mortality following AMR

Period
Single center retrospective AMR database 2009 - 2017 (n = 110 patients, 145 AMR)
# 1 Histopathologic criteria

Biopsy proven AMR - ISHLT 2013

- Microcirculation
- Inflammation
- **pAMR1 H+**
- **In situ** activation of cplt → C4d
- **pAMR1 I+**
- **pAMR2**
- **(pAMR3)**

# 2 TTE & functional parameters

= retrospective definition of **cardiogenic** shock

- LV dysfunction
  - LVEF < 0.40 or
  - SUV ≥ 0.20

- Dobutamine infusion

- ECMO support

- OR
# Patients

- \( n = 17 \), mostly males (70\%), median time between HTx and AMR = **22 months**
- **2 patients** with history of biopsy proven AMR
- CNI + CS +/- MMF
- ECMO \( n = 11 \) - Dobutamine infusion only \( n = 6 \)

# Diagnosis of rejection

- **28\%**

- Anti-HLA DSA
  - + for all patients
  - De-novo class II +++
  - High MFI
  - MFIc median 18,300
Results - Treatment of AMR

# All patients
Plasmapheresis (5 – 15)
IV Cortisteroid pulses
High dose IVIg (2g/kg)

# Complementary treatments
ATG : n = 9
Rituximab : n = 6
Eculizumab : n = 1
Results - Survival

- **In-hospital deaths**: 76%
- **1-year mortality**: 82%
Results - ECMO vs no ECMO

# ECMO
n = 11 patients
8 deaths under ECMO support (persistence graft dysfunction, septic shock +++)
1 death post TAH surgery
2 weanings (J13 et J45)
- 1 patient alive (CAV 0 → 2)
- 1 death: sudden death at home 6 months after rejection

# Dobutamine infusion only
n = 6
4 deaths without ECMO
Comorbidities (Kaposi, CKD)
- Hemorrhagic stroke
- Septic shock
- Cardiac arrest
Discussion – Strategy?

Intensification of IS regimen? Surgical strategy?
Discussion – micro/macro circulation

**Microcirculation**

Mouse model of AMR
P. Bruneval – JP Duong (HEGP – PARCC)
O. Thaunat (CHU Lyon)

**Macrocirculation**

Fulminant CAV following AMR
Take Home Messages

- **Poor prognosis**
- **Start treatment early**
- AMR + CS
- Micro/macrocirculation
- Many pathways…
HTx = great teamwork!

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Intensive Care Unit: Pr Combes
Anesthesiology: Pr Amour
Cardiology department: Pr Montalescot
Hemobiotherapy Unit: Dr Saheb
Department of Pathology: Dr Rouvier
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