



PRAC³ Meeting

Preclinical Research in Acute
Cardiac and Critical Care

Brussels, August 29-30, 2023



All lectures last 15 minutes + 5 minutes dedicated to Q&A
Speakers labelled by an (*) will be connected remotely

Tuesday, August 29th, 2023

08:15	Venue opening
08:50	Welcome speech and presentation of the meeting Antoine Herpain (Brussels, Belgium)

Session 1: Acute myocardial injuries and coronary circulation disorders

Chairpersons: Hanne Berg Ravn (Odense, Denmark) and Daphne Merkus (Rotterdam, Netherlands)

09:00	Ischemia/reperfusion injuries after acute myocardial infarction: full pressure revascularization vs. persistent coronary artery stenosis Piet Claus (Leuven, Belgium)
09:20	Coronary microvascular dysfunction after acute myocardial infarction Dirk Duncker (Rotterdam, Netherlands)
09:40	Alterations of coronary blood flow autoregulation in sepsis Céline Boudart (Brussels, Belgium)
10:00	Systemic inflammatory reaction triggered by acute myocardial infarction Jerome Lugin* (Lausanne, Switzerland)
10:20	Break

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Session 2: Right ventricular failure

Chairpersons: Dirk Duncker (Rotterdam, Netherlands) and Dirk Donker (Utrecht, Netherlands)

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| 10:45 | Importance of keeping a closed chest animal model
Mads Lyhne (Aarhus, Denmark) |
| 11:05 | Right ventricle pressure-volume loops and remodeling in pressure vs. volume overload: short vs. long term consequences
Rahi Symakani (Rotterdam, Netherlands) & Daphne Merkus (Rotterdam, Netherlands) |
| 11:30 | Right ventricle reversed remodeling with low-flow mechanical support
Piet Claus (Leuven, Belgium) |

Session 3: Novelties in percutaneous ventricular assist devices

Chairpersons: Alexandre Ouattara (Bordeaux, France) & Mikulas Mlcek (Prague, Czech Republic)

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| 11:55 | Managing bleeding and hemolysis during percutaneous ventricular assist device support
Christophe Vandenbrielle, (Leuven, Belgium) |
| 12:15 | Abiomed: new developments in the Impella® devices
Christoph Nix (Aachen, Germany) |
| 12:35 | <i>Lunch</i> |

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Session 4: Left ventricular unloading in cardiogenic shock

Chairpersons: Petr Ostadal (Prague, Czech Republic) and Guillaume Lebreton (Paris, France)

13:30	Mechanosensation in chronic vs. acute heart failure Sophie van Linthout (Berlin, Germany)
13:50	Reduction in myocardial oxygen consumption with different support combinations: <i>in silico</i> evidence Daniel Burkhoff* (New York, USA)
14:10	Reduction in myocardial oxygen consumption with different support combinations: <i>in vivo</i> evidence Konstantin Yastrebov (Sydney, Australia)
14:30	VA-ECMO with or without intra-aortic balloon pump Alexandre Ouattara (Bordeaux, France)
14:50	Impella-CP® Alexander Moiroux (Brussels, Belgium)
15:10	PulseCath® Clement Delmas* (Toulouse, France)
15:30	Atrial septostomy Mikulas Mlcek (Prague, Czech Republic)
15:50	Break

Session 5: Extending the scope of cardiogenic shock models

Chairpersons: Antoine Herpain (Brussels, Belgium) and Konstantin Yastrebov (Sydney, Australia)

16:15	<i>Ex vivo</i> kidney perfusion to investigate renoprotection during mechanical circulatory support Sebastien Rasmussen (Odense, Denmark)
16:35	Alcohol instead of microsphere myocardial embolization Alexandre Ouattara (Bordeaux, France)
16:55	Association between speckle tracking echocardiography and pressure-volume loops during cardiogenic shock development Peter Frederiksen (Odense, Denmark)
17:15	Cardiogenic shock with global myocardial hypoxia and mechanical complications of acute myocardial infarction Petr Ostadal (Prague, Czech Republic)

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Consensus roundtable

Chairpersons: Alexandre Mebazaa (Paris, France) and Bart Meyns (Leuven, Belgium)

17:40

Unmet needs in cardiogenic shock clinical practice and issues still to be addressed by pre-clinical research?

Alexandre Ouattara (Bordeaux, France), Jan Belohlavek* (Prague, Czech Republic), Daniel Burkhoff* (New York, USA), Dirk Donker (Utrecht, Netherlands), Navin Kapur* (Boston, USA), Guillaume Lebreton (Paris, France), Jacob Moller* (Odense, Denmark), Holger Thiele* (Leipzig, Germany) (*non-exhaustive list*)

18:30

End of the day

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Wednesday, August 30th, 2023

Session 1: Cardiac arrest and brain injury

Chairpersons: Asger Granfeldt (Aarhus, Denmark) and Fabio S Taccone (Brussels, Belgium)

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| 08:30 | Hypertonic sodium lactate reduces brain injury after cardiac arrest
Filippo Annoni (Brussels, Belgium) |
| 08:50 | Microcirculatory blood flow during cardiac arrest and cardiopulmonary resuscitation
Jan Belohlavek* (Prague, Czech Republic) |
| 09:10 | Brain targeted therapy during extracorporeal life support
Anthony Moreau (Brussels, Belgium) |
| 09:30 | Intensive care unit animal models of acute brain injury
Thomas Kapapa (Ulm, Germany) |

Session 2: Renin-angiotensin-aldosterone system disturbances in circulatory failure

Chairpersons: Raphaël Favory (Lille, France) and Filippo Annoni (Brussels, Belgium)

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|-------|--|
| 09:55 | Renin-angiotensin-aldosterone system and angiotensin-II deficit in septic shock
Adrien Picod (Paris, France) |
| 10:15 | Angiotensin 1-7 administration in septic shock
Bruno Garcia* (San Francisco, USA) |
| 10:35 | Procizumab restores vascular tone in septic shock and reduces myocardial injury
Bruno Garcia* (San Francisco, USA) & Antoine Herpain (Brussels, Belgium) |
| 10:55 | Break |

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Session 3: Pulse wave analysis and hemodynamic monitoring

Chairpersons: Manuela Ferrario (Milan, Italy) and Mikulas Mlcek (Prague, Czech Republic)

11:20	Can it predict sepsis onset and future response to vasopressor therapy Finneas Catling (London, UK)
11:40	Pressure-volume vs. pressure-strain loops: regional myocardial work and pre-stretch-strain relationship Piet Claus (Leuven, Belgium)
12:00	Current and new methods to compute the reflection wave magnitude from arterial pressure signal only Marta Carrara (Milan, Italy)
12:20	Dynamic arterial elastance to guide fluid resuscitation Manuel M Garcia* (Jerez de la Frontera, Spain)
12:40	Mechanisms and investigation of diastolic dysfunction in sepsis Francisco Vasques-Novoa (Porto, Portugal)
13:00	<i>Lunch</i>

Session 4: New investigation techniques and paradigms in circulatory failure

Chairpersons: Sebastien Preau (Lille, France) and Marcin Osuchowski (Vienna, Austria)

14:00	Stable isotope-based quantification of metabolic pathways Peter Radermacher (Ulm, Germany)
14:20	Extracellular vesicles from mesenchymal stem cells in a hemorrhagic-traumatic rat model Sergiu Dumitrescu (Vienna, Austria)
14:40	Circulating histone scavengers in septic shock Fuhong Su (Brussels, Belgium)
15:00	Acetylcarnine in septic shock Raphael Favory (Lille, France)
15:20	Heart rate control with ivabradine or esmolol in septic shock Antoine Herpain (Brussels, Belgium)

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Session 5: New perspectives in pre-clinical experimental design

Chairpersons: Antoine Herpain (Brussels, Belgium) and Peter Rademacher (Ulm, Germany)

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|-------|--|
| 15:45 | 3R ethical rule application in pre-clinical critical care research
Marcin Osuchowski (Vienna, Austria) |
| 16:05 | Insights in non-human primate research
Rabea Hinkel (Göttingen, Germany) |
| 16:25 | How reliable are cardiovascular mathematical models in critical illness
Dirk Donker (Utrecht, Netherlands) |
| 16:45 | Big data and the computational scientist's perspective
Jerome Cartailier (Paris, France) |
| 17:05 | Closing remarks
Antoine Herpain (Brussels, Belgium) & Fabio S Taccone (Brussels, Belgium) |

End of the meeting

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