

MAS in Cardiovascular Perfusion

006 Applied Perfusion Science I

Cardiovascular and thoracic surgery requires a large diversity of medical devices for patient monitoring, with invasive as well as non-invasive methods. This module will cover different topics (ex. blood gas management, laboratory values, coagulation deficiencies) that allows appropriate decision-making on how to handle in normal situations and in exceptional circumstances.

It is of great importance for the perfusionist to accurately define and interpret the different measured variables and successfully analyze the patient's cardiac and circulatory functions. Emergency medical situations can be detected and often avoided if diagnosed at early stages. The continuous recording, observation, and evaluation of physiological parameters belong of the main task of the perfusionist.

Learning Outcomes/Competencies

The students will be able to,

- regulate the patient's acid-base balance and to manage the blood gas
- perform intra-operative pressure and flow measurement
- measure and interpret relevant laboratory values and apply them to actual situations
- apply appropriate actions in the early stage of coagulation deficiencies
- perform intra-operative circulatory support
- operate the heart-lung machine under exceptional circumstances
- identify, summarize, and communicate significant aspects of a scientific presentation.

Module Content

- Coagulation - Coagulation Management
- Priming
- EBCP Preparation I
- Intra-operative circulatory support: WetLab in USZ
- Complications/failures: WetLab in USZ
- BLS
- Pressure and flow measurement devices
- Blood Gas Management
- Peer Mentoring & Scientific Writing

Teaching and Learning Methods

- Lectures, Learning on the model, Discussions, Case Studies, Presentation of student's poster, Guided Self-Study, Training, etc.

Proof of Performance

Written examination

Literature

Burnett CM, Duncan JM, Vega JD, et al. (1990). Heart transplantation in Jehovah's Witnesses. An initial experience and follow-up. Arch Surg; 125:1430-1433.

Chikwe, J., Cooke, D. & Weiss, A. (2013). Cardiothoracic Surgery. (2th Edition). Oxford: Oxford Specialist Handbooks in Surgery.

Cooper JR Jr. (1990). Perioperative considerations in Jehovah's Witnesses. Int Anesthesiol Clin; 28:210-215.

careum

**Careum
School of Health**

Part of the Kalaidos University
of Applied Sciences

- Gibbon, JH Jr. (1954). Application of a mechanical heart and lung apparatus to cardiac surgery. Minn Med; 37:171-185; passim.
- Ghoshal K, Bhattacharyya M. (2014). Overview of platelet physiology: its hemostatic and nonhemostatic role in disease pathogenesis. ScientificWorldJournal; 2014:781857.
- Gravlee, G., Davis, R., Hammon, J. & Kussmann, B. (2016). Cardiopulmonary Bypass and Mechanical Support: Principles & Practice (4th edition). Philadelphia: Wolters Kluwer.
- Kirklin, JW, Donald DE, Harshbarger HG, et al. (1956). Studies in extracorporeal circulation. I. Applicability of Gibbon-type pump-oxygenator to human intracardiac surgery: 40 cases. Ann Surg; 144:2-8.
- Schmid, C & Philipp, A. (2011). Guidelines for Extracorporeal Circulation. Heidelberg: Springer.
- Schuler, J. (2010). Perioperative drug management: inhibition of platelet function in cardiovascular diseases. Arzneimittelbrief, 44 (20). Berlin: Westkreuz. <http://www.kardiologie-salzburg.com/en/wissen-kardiologie/artikel-aus-arzneimittelbrief/> [18.8.2016]
- Sanjay, O.P, Devnath, A. & Thejas, B.C. (2005). ARTERIAL BLOOD GAS MANAGEMENT DURING CARDIOPULMONARY BYPASS. 20 (1) 98-102. Indian Journal of Clinical Biochemistry.

Module Convener

Manuel lafrate, Head of MAS in Cardiovascular Perfusion; BSc in Cardiovascular Perfusion, ECCP

Teaching Staff

PD Dr. Asmis Lars, Hematologist
Costabile Simon, DAS in MedTec, ECCP
Jenny Hansjörg, MSc in MedTec, ECCP
Dr. Scharpf Natalie, Anesthesiologist
Wood Sue, Teacher Medical English
Zenklusen Urs, ECCP

Requirements

- ability to read and understand English expert literature and to follow classes taught in English
- knowledge of Scientific Work
- prospect of an internship in the area Cardiovascular Perfusion

Module Code

MAS_CP_006

Module Type/Module Order

Mandatory Module in the course MAS Cardiovascular Perfusion
The module order is fix.

Study Time/ECTS

150 hours, 5 ECTS points
40 hours Classroom Lessons and 110 hours Guided Self-Study

Module Fees

On request

Teaching Language

English

© Careum School of Health, March 2021