

**A**

### **Anastomosis**

Surgical connection between two hollow organs, e.g. between two blood vessels or parts of the intestine

### **Aneurysm**

Inborn or aquired bulge of the heart wall or an artery

### **Aneurysm-Clipping**

Treatment of a cerebral aneurysm by putting a clip around it in order to stop the blood supply

### **Aortocoronary bypass**

Surgical procedure performed in the case of blocked coronary arteries; e. g. vein transplant used to bypass a blocked coronary artery

**B**

## **Biliary atresia**

Congenital defect of the bile duct causing a backflow of bile into the liver

## **C**

### **Calibration**

Adjustment of reference measurement

### **Capillary**

Relating to the very smallest blood vessels which supply the tissues

### **Cardiac**

Relating to the heart, coming from the heart

### **Cardiac Function Index (CFI)**

Calculated from the ratio of Cardiac Output Index (CI) to the Global End-Diastolic Volume Index (GEDVI); it presents a cardiac performance index

### **Cardiac Index (CI)**

Cardiac output in relation to the body`s surface, measured in l/min/m<sup>2</sup>

## **Cardiac Output**

Volume of blood pumped into the circulatory system by the heart per minute, measured in l/min

## **CBF**

Cerebral Blood Flow

## **CBF-Monitor**

Monitor for non-invasive quantification of cerebral blood flow

## **Chemotherapy**

Inhibition of tumor cells in the organism using chemotherapeutic agents

## **Chromophor**

Part of a dye stuff which contains inducible electrons

## **Cerebral**

Relating to the brain

## **Central venous oxygen saturation**

Oxygen saturation of the central venous blood, measured next to the right atrium. It is a measure for global oxygen supply and demand.

## **Cirrhosis of the liver**

Diffuse chronic liver disease

## **Congenital**

Occurring as from birth, due to damaged or abnormal genetic material

## **COLD system**

System for less invasive monitoring of cardiovascular functions, liver function and circulation blood volume using ICG. The COLD System provides quantitative volumetric measurement by transpulmonary double indicator dilution technique and oximetry.

## **Compliance**

Measurement of changes in volume depending on pressure

## **Contractility**

Ability of biological structures, i.e. the heart muscle, to actively shorten themselves

## D

### **Dermatology**

Art of therapeutics of the skin

### **Diaphragm**

Anatomical border between the thorax and the abdomen. It is the main breathing muscle.

### **Diastole**

Part of the cardiac cycle in which the heart muscle relaxes

### **Diode laser**

Semiconductor crystals which can be activated by electric current to produce a stimulated emission of electromagnetic radiation in wavelengths ranging from around 600nm - 1.5Åµm.

### **Disposables**

Sterile disposable items

## **E**

### **End-Diastolic ventricular volume**

Blood volume of a chamber of the heart at the end of the chambers' relaxation phase, measured in ml

### **Endoscopy**

Illumination and inspection of body cavities and hollow organs using an endoscope

### **End-Systolic ventricular volume**

Blood volume of a chamber of the heart at the end of the chambers contraction phase, measured in ml

### **Esophageal Doppler Monitoring**

Procedure for monitoring cardiovascular function using an ultrasonic probe which is introduced into the esophagus

### **Excretory**

Clearing (elimination) of substances by specific organs, i.e. liver or kidney

## **Excretory liver function**

Elimination function of the liver

## **Extravascular Lung Water (EVLW)**

Water content of the lung tissue, measured in ml

**F**

**FDA**

Food and Drug Administration, US drug authority which grants approval for the distribution of medical products and drugs

## **Fiber-optic catheter**

Catheter with an integrated optical fiber

## G

### Gastrointestinal

Affecting the stomach and intestine

### Global Ejection Fraction (GEF)

Proportion of blood which is disgorged during the systole. It is a measure for evaluating the cardiac function.

### Global End-Diastolic Volume (GEDV)

GEDV is the total of all four endiastolic volumina of the heart. It is a theoretical volume which doesn't exist physiologically.

## H

### Haemoglobin

Red blood dye. It allows oxygen transport by the blood.

## **Heart rate**

Heartbeats per minute

## **Hemodynamic monitoring**

Procedure for monitoring cardiovascular function

## **Hemodynamics**

Science of the physical principles behind the circulation of the blood and of the interaction of the forces affecting the flow of blood within a vessel

**I**

## **IC-CALC**

IC-CALC is the software to quantify the fluorescence signal with the IC-VIEW Camera.

## **IC-VIEW**

System for quantifying tissue perfusion using ICG-PULSION

## **ICG-PULSION**

Diagnostic dye stuff (indocyanine green) with a broad application spectrum, i.e. in diagnosis of liver function or ophthalmology

### **ICG-PULSION elimination**

Elimination of ICG-PULSION by the liver. It is a measure for the liver function as well as liver perfusion.

### **Indicator**

Substance which makes a certain procedure or state visible, i.e. by change in color or fluorescence

### **Index of Left Ventricular Contractility**

A measure for the peak velocity of the rise in the pressure generated by the left ventricle.

### **Inline injectate temperature sensor**

Sensor for detecting injectate temperature

### **Intra-Abdominal Pressure (IAP)**

The pressure in the abdomen, reaching from the diaphragma to the pelvis

## **Intra-aortic balloon pump**

Device comprising a balloon catheter that is placed in the aorta and is inflated and deflated synchronized with the patients heartbeat

## **Intracardiac and extracardiac shunts**

Short-circuit connection between arterial and venous blood vessels within (intra) or outside (extra) the heart

## **Intracardiac valve insufficiency**

Insufficient closing function of the heart valves

## **Intracranial hypertension**

Elevated pressure inside the skull, caused i.e. by tumors or bleedings

## **Intrathoracic Blood Volume (ITBV)**

Total volume of the blood in the heart at the end of the relaxation period plus the blood volume in the lungs

## **Intra-Thoracic Pressure**

Pressure in the thorax, between the surface of the lung and the thoracic wall

## **Invasive and non-invasive methods of examination**

Invasive methods of examination are those which involve an intervention into the body and hence a risk, e. g. examination of the heart using a cardiac catheter. Non-invasive methods of examination, e.g. examination of the heart using an ECG, do not require such an intervention.

## **In-vitro Calibration**

calibration outside of a living organism, i.e. by means of laboratory parameters

## **Ionizing radiation**

High-energy types of radiation which give off so much energy to the atoms and molecules impacted when they hit or move through matter that ionization occurs (e.g. X-rays, gamma rays)

## **K**

### **Kaposi`s sarcoma**

Malignant tumor often associated with Acquired Immunodeficiency Syndrome (AIDS)

## L

### Laser

Abbreviation for "light amplification by stimulated emission of radiation": physical method for creating monochrome, coherent, (almost) parallel rays of light with an extremely high energy density

### Laser Doppler Flowmetry

Procedure for quantifying blood flow

### Laser therapy

Here: closure (coagulation) of malformed blood vessels using a laser

### Left ventricular

Relating to the left heart chamber

### LiMON

Monitoring system for the non-invasive measurement of liver function, liver perfusion and blood volume

## **Lumen**

The interior of a hollow structure, i.e. the gut or a venous canula

## **M**

### **Macular degeneration**

Deterioration of the macula with progressively impaired vision subsequently leading to blindness (macula: the yellow spot on the retina where vision is sharpest)

### **Mammography**

Diagnostic procedure for detecting tumors of the female breast

### **Metastasis**

Secondary growth, spreading of cells from a (primary) tumor, in particular a malignant one, to another location in the organism far from its place of origin

### **Microcirculation**

Circulation of the blood in the capillaries, the area between the arterial and venous systems

## **Myocardium**

The heart muscle. It is the central part of the heart wall.

## **O**

## **Ophthalmology**

Field of medicine concerned with the eye

## **Oxymetry**

Measurement of the oxygen saturation of the blood by spectral photometry

## **P**

## **PAC method**

Measurement of the cardiovascular function using a right heart catheter

## **Palliative treatment**

Alleviative treatment, without treating the underlying disease

## **Palpation**

Method of clinical examination of a patient, allowing the evaluation of i.e. consistence or elasticity of organs

## **PEEP Adjustment**

Positive end expiratory pressure. It is the pressure remaining in the lung at the end of the expiration. It opens or keeps open the alveoli of the lung and thus improves gas exchange.

## **Perfusion pressure**

Difference in blood pressure between the arterial and the venous part of a vascular bed. It is a measure for the effective pressure of the blood stream.

## **Perfusography**

Quantitative, image-forming determination of tissue circulation using ICG without ionizing radiation

## **Pericardial effusion**

Accumulation of liquid in the heart sac (e.g. blood)

## **Pericardial effusion monitoring**

Procedure for diagnosing and monitoring an accumulation of fluid in the heart sac

## **Pericardium**

Heart sac, serves to protect the cardiac muscle

## **Perioperative**

Period shortly before, during and shortly after an operation

## **Pharmacokinetics**

Study of the influence of the organism on drugs: the kinetics of the absorption, distribution, metabolism and excretion in an intact organism are described using models.

## **Photochemotherapy**

Method of therapy for treating diseased tissue (tumors, malformed blood vessels) using photosensitizers or phototoxic substances (substances which produce cytotoxins under the effect of light)

## **Photodynamic Therapy**

Method of therapy in which patients are administered photosensitizers which accumulate in diseased tissue, where they produce singlet oxygen under the influence of light; the oxygen acts as a cytotoxin and destroys the diseased tissue

## **Photosensitizers**

Dye molecules (photoactive substances), which produce cytotoxic oxygen molecules under the influence of light.

## **PiCCO-Technology**

Less invasive, continuous method for monitoring of the cardiovascular function in critically ill patients, combining pulse contour analysis and thermodilution

## **Plasma disappearance rate**

Liver function parameter: represents the rate of elimination of ICG in %/min; this is calculated from the decrease in concentration of the ICG after injection into the blood.

## **Pleura**

Epithelial border between the surface of the lung and the thoracic wall, consisting of a serous skin

## **Polytrauma**

Simultaneously acquired injuries, which are life-threatening in their combination or apart from each other

## **Porphin**

Basic structure of the porphyrins

## **Porphyrins**

Intermediate products of the synthesis of the haemoglobin (red blood dye)

## **Port-wine stain**

Mainly congenital skin abnormality due to the enlargement of the capillaries; it causes light to dark blue-red marks of various sizes that are often bizarrely shaped.

## **Pressure transducer**

Sensor which mechanically converts the arterial blood pressure transferred through a column of water into an electric signal

## **Pulmonary artery catheter (PAC)**

Right heart catheter

## **Pulmonary Vascular Permeability Index**

(PVPI)

The quotient of extravascular lung water (EVLW) and the pulmonary blood volume (PBV). It allows to differentiate between a hydrostatic and a permeability-caused lung edema.

## **Pulse Contour Analysis**

Derivation of continuous parameters out of the form of the arterial pressure curve

## **Pulse Contour Cardiac Output (PCCO)**

Continuous calculation of the volume of blood pumped into the cardiovascular system per minute, measured in l/min and obtained by analyzing the arterial blood pressure curve

### **Pulse Pressure Variation (PPV)**

Variation of the pulse pressure during the breathing (resp. ventilation) cycle

**R**

### **Radiation therapy**

Collective term referring to the use of radiation to treat benign and, in particular, malignant tumors

### **Radicals**

Highly reactive substances which are produced e.g. using photosensitizers and/or other mediators which act locally as cytotoxins (e.g. singlet oxygen)

### **Radioactive xenon saturation**

Diagnostic procedure for determining the flow of blood through the organs using radioactive xenon

### **Rectal carcinoma**

Malignant tumor of the rectum

## **Respiration**

lat. breathing

## **Respiratory insufficiency**

Insufficiency of the respiratory function, i.e. caused by diffusion disturbances or weakness of the breathing muscles

## **Right-Left-Shunt**

Direct blood flow (shunt) from the right to the left part of the heart, as a consequence of a reversal of a left-right-shunt

**S**

## Sclerotherapy

Sclerosing of veins, treatment of surface varicose veins by injection

## Selective photothermolysis

Thermal destruction of diseased tissue using a chromophore, which accumulates selectively in diseased tissue, and laser therapy. The chromophore absorbs laser energy and releases it in the form of heat to the diseased tissue which is then destroyed (lysed).

## Sepsis

"blood poisoning". Presence of a systemic inflammation in the body due to an infectious cause. The following criteria have to be fulfilled:

- Hypo- ( $< 36^{\circ}\text{C}$ ) or Hyperthermia ( $> 38^{\circ}\text{C}$ )
- Brady- ( $< 60\text{bpm}$ ) or Tachycardia ( $> 90\text{bpm}$ )
- Tachypnoea (respiratory frequency  $> 20/\text{min}$ )
- White blood count too high or too low
- infectious disease secured or strongly suspected

## Shock

Acute, generalized occurrence of a lack in oxygen supply in vital organs. The shock is a life-threatening disturbance of the circulation. There are the following forms:

- hypovolemic shock

- toxic shock
- septic shock
- cardiogenic shock
- neurogenic shock

## **Shunt**

Bypass. Natural or artificial, surgically established, bypass of a part of a blood vessel or an atypical connection between two blood vessel systems (e.g. the portal vein and the caval vein system)

## **Singlet oxygen**

Highly-reactive oxygen molecule created by photosensitizers under the influence of light, which acts as cytotoxin

## **Spectral photometric**

Measurement of light (by photometer)

## **Spider burst**

Enlarged tiny veins running just under the skins' surface

## **Stable Xenon CT**

Diagnostic procedure for examining cerebral blood flow

### **Stroke Volume (SV)**

The volume of blood ejected by both ventricles of the heart with each contraction in ml

### **Stroke Volume Variation (SVV)**

Variation of the stroke volume over the respiration cycle, shows by how many percent the stroke volume varies from an average determined over 30 seconds

### **Systemic Vascular Resistance (SVR)**

Total resistance of the entire vascular bed

### **Systole**

Part of the cardiac cycle in which the heart muscle contracts

### **T**

### **TDa-Technology**

Procedure integrated in the PiCCO system for less-invasive monitoring of the cardiovascular functions of severely ill patients based on the evaluation of a

temperature difference curve

## **Temperature bolus**

Known volume of fluid measured in ml which is injected into a central vein, either chilled or at room temperature, and is used as an indicator for transpulmonary thermodilution

## **Thermistor**

Temperature sensor located close to the tip of the PiCCO catheter

## **Thermodilution**

Indicator dilution procedure which uses a difference in temperature as an indicator

## **Thermodilution catheter**

Catheter with an integrated temperature sensor close to its tip used for measuring differences in temperature

## **Trans-Diaphragmatic Pressure (TDP)**

A pressure derived from the difference between the intraabdominal pressure and the intrathoracic pressure

## **Transpulmonary**

(latin: trans = through): through the lung

## **Transpulmonary Thermodilution**

Indicator dilution method which uses an arterially measured difference in temperature

## **U**

## **Ulcer**

Non-healing lesion of the skin or mucosa

## **V**

### **Validity**

Measure for the quality of empiric scientific investigations, besides of reliability and objectivity

### **Varicosis**

Formation of extensive varicose veins

### **Ventricle**

Chamber of the heart

### **Volumetric parameters**

Hemodynamic measures (e.g. CI, ITBV), reflecting certain blood volumes in the circulation system

### **Volumetric monitoring**

Method for the direct measurement and monitoring of certain blood volumes in the circulation

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