German hospitals have been confronted with new economic conditions and increasing competition since the introduction of case-based lump sums. Nowadays, doctors and nursing staff are not only faced with the challenge of guaranteeing a high quality of medical care, but also working in a cost-efficient and process-optimized manner. The need for new equipment concepts is particularly great in the specialist field of anesthesia, in which health professionals have always come up against an increasingly complex perioperative procedure. On the one hand, modern anesthesia equipment should fulfill the needs of patients, anesthetists and nursing staff as much as possible. On the other hand, it should also achieve benefits for the administration and IT area.

The Dräger Zeus Infinity Empowered (IE) anesthesia system combines various anesthesia techniques in one system. The integrated patient monitoring and integration of IV syringe pumps help anesthetists make and implement therapeutic decisions. A common user interface allows the anesthetist to see and control all functions at a glance. Interfaces, such as USB and Ethernet, ensure that the Zeus IE can be integrated in existing and future IT landscapes.

The Zeus IE is suitable for use in operation theatres, entry and exit areas, as well as other rooms used for medical purposes.
Automatic anesthetic gas control:
for a high degree of patient safety and simple operation

The precise control of the anesthetic through the exact dosage of anesthetic agents is very important for patient safety. With the Zeus IE it is possible to accurately perform an automatic control of oxygen, carrier gas and volatile anesthetics, as well as the manually controlled dosage of fresh gas. This system of target controlled anesthesia (TCA) allows anesthetists to define target values. The TCA function ensures that these target values are achieved and adhered to. The automatic control delivers the exact quantity of anesthetic gas and not only makes fast introduction and recovery of the anesthetic possible, but also a stable depth of anesthesia. The Zeus IE also completes the anesthetization quickly in AC (Auto Control) mode, without it being affected by changes to the fresh gas flow. The TCA can help determine the effects of the anesthesia used more accurately. This means it is possible, before the introduction, to aim for an end tidal concentration of anesthetic agents that comes very close to achieving the desired effect.

Closed system for efficient anesthesia

With the TurboVent 2 turbine ventilator, the Zeus IE can be operated as a closed anesthesia system with full rebreathing in Auto Control mode. The precise dosage of anesthetic gas quantities in the closed Zeus IE system reduces the consumption of gas and anesthetic agents and can thus cut costs. In this "closed system" operating mode, only so much gas is consumed as the patient actually uses. Less gas is used than in low flow or minimal flow anesthesia - and with fully-automatic anesthetic application. The anesthetic agent used is applied directly to the breathing circuit. This means that the time required for the anesthetic is optimized, independent of the fresh gas supply.
The Zeus IE is the only anesthesia system with turbine-based ventilation. The ventilation quality of the TurboVent 2 can be compared to that of intensive ventilation. It allows the patient room to breathe (spontaneous breathing) at any time, regardless of the mode. As a result, adults, children and newborns can be adequately ventilated throughout the entire anesthesia.

**Medication database supports intravenous therapy**

Total intravenous anesthesia (TIVA) is a form of anesthesia, in which the anesthetist does not use anesthetic gases. The anesthesia is brought about solely by the intravenous injection of a sedative (hypnotic) and a pain reliever (analgetic) through syringe pumps. This differs to balanced anesthesia, in which injectable anesthetic agents are used to introduce the anesthesia and anesthetic gases are used to maintain anesthesia. The integration of syringe pumps in the Zeus IE allows TIVA and balanced anesthesia, as well as regional anesthesia, which is used to free a certain area of the body from pain.

The medication database integrated in the Zeus IE automatically provides the TIVA with the preconfigured standard values and dosage limits defined by the health professional for medication applied intravenously, based on patient data entered, such as weight and height. Intelligent alarm management monitors these settings and can, therefore, reduce the risk of user errors.

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Standardization for intuitive and efficient operation

The operating concept for the Zeus IE is structured intuitively and provides all the functions on a touch screen. Comprehensive standardizations, in line with other Dräger products, make it simpler to familiarize oneself with the device. This reduces the cost of training and increases operating safety. A clear alarm display and flashing rotary knob further increase the user’s awareness, thus ensuring improved patient safety. In addition, the device can be configured to reduce the number of operating steps. This reduces the workload, leaving the doctor with more time for the patient. The additional functions of the Zeus IE, such as time-controlled automatic system check, leak assistant and remote service concept (reduces maintenance effort due to the ability to perform automatic diagnoses and transfer data directly to Dräger Service) also contribute to the saving of valuable time on routine tasks. Downtime can be reduced to a minimum, thus reducing operating costs.

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Quellenangaben


4 Cf. c.a.r.e. No.3 / 2005, Interview Prof Dr. Michael Struys, p. 12.


6 Cf. c.a.r.e. No.3 / 2005, Interview Prof Dr. Michael Struys, p. 12.


8 Cf. ib. p. 1233.
The Dräger Zeus Infinity Empowered (IE) is manufactured by Drägerwerk AG & Co. KG.

References:


