The Four Pillars of Anaesthesiology

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2.1 Anaesthesia

2.1.1 German Anaesthesia before 1945

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Surgery has been limited ever since its beginning due to inadequate asepsis as well as insufficient pain management. As the news of the invention of ether as an anaesthetic reached Europe in 1846 it was initially dismissed as »Yankee hogwash« and »typical North American embellishment«. The French physiologist Marie Jean Flourens (1794–1867) issued a warning about its administration by stating: »Ether that kills pain also kills life, and this new substance that will conquer surgery will turn out to be terrific as well as terrifying« [1].

Flourens’ judgement was proven right as only a week later the first fatal incident during anaesthesia occurred [2]. Although other various volatile anaesthetics that were considered to be safe were applied during the following decades, fatal adverse events during anaesthesia were observed; hence, patients often would have more reservations about the anaesthesia than the surgical procedure itself or the accompanying pain. As for this apprehension, by the end of the nineteenth century, leading German surgeons, e.g. Johannes von Mikulicz-Radecki in Breslau (1865–1905; Fig. 2.1), concluded that »anaesthesia is perilous« [3].

At the same time as von Mikulicz-Radecki criticized anaesthesia, knowledge of asepsis as well as antisepsis had improved tremendously, and infections of wounds could usually be prevented. Therefore, he would not allow anyone dressed in street clothes to enter the operating theatre, as had still been practised in other hospitals. This was enforced by wearing gloves, face masks and light-coloured, sterilized linen aprons that soon were shown off even outside the operating theatre; hence, surgeons rapidly were nicknamed »demigods attired white«. As opposed to the advances in asepsis during surgery, the evolution of anaesthesia was less stunning. Hardly any significant innovation had been introduced to improve the quality of anaesthesia or reduce its hazards.

Over the decades the belief survived that anaesthetics poisoned the organism; thus, deep stages were to be avoided. Physicians as well as patients were aware of manifold dangers during anaesthesia.

Guidelines for Conducting Anaesthesia in the Year 1922

Even guidelines for conducting anaesthesia in surgery-based training reflected the above-mentioned uncertainties. These had been put into writing by the surgeon Heinrich Braun (1862–1934) of Zwickau who had introduced several novel techniques in general as well as regional anaesthesia and was reckoned to be an experienced anaesthetist:

Anaesthesia should not be deeper than necessary. Assuming that a patient is fastened accurately, anaesthesia may be so flat that the corneal reflex is still preserved, no snoring emerges during breathing and the epiglottis does not close [4].

The Airway – a Major Challenge in Anaesthesiology

Many surgeons urged that the anaesthesia not be too deep, as anaesthetic drugs were considered poisonous and upper airway obstruction could be caused when the tongue falls back. Pioneers in ether anaesthesia had already pointed out the »occurrence of suffocation« and deduced that this was related to the incorrect use of the anaesthetic. Their assumption certainly was accurate, though they could not trace the actual cause of this phenomenon [5]. Even John Snow (1813–1858) could not perceive danger in a patient snoring. In 1877 Friedrich Esmarch (1823–1908) of Kiel unveiled several precautions for anaesthesiology in his paperback on surgery at times of war. For patients with