

6th World Congress of Total Intravenous Anaesthesia – SIVA

WHY INTRAVENOUS CATHETERS HAVE CHANGED THE WORLD OF MEDICINE AND ANESTHESIA

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Abstract:

This lecture presents historical milestones during the last 350 years on early experiments with intravenous injections of drugs and blood transfusion. Experiments took place in a climate of scientific discovery rather than clinical application. Technical problems were numerous during attempts of vascular cannulation and lack of basic knowledge of physiology resulted in many complications related to intravenous access, not seldom fatal, resulting in a complete ban of blood transfusion in Europe for 150 years.

These first 17th century experiments were held during weekly scientific sessions and were documented meticulously published in new journals: e.g. in Britain, in the 'Philosophical Transactions of the Royal Society of London', the oldest continuously published scientific journal still in existence, and in France in the 'Journal des Sçavants'. These journals became the primary means of communication of scientific research and letters amongst the community of scientists. They published not only medical research, but all kind of scientific experiments and discoveries in e.g. physics, chemistry, mathematics, natural phenomena (cosmology, astrology).

Intravenous therapy meant the start of the first primitive anaesthetic and laid the foundations for anaesthesia and blood transfusion, although the clinical application came centuries later. Successful intravenous anaesthesia was only established around the turn of the 19th century.

The motto of the 17th century 'Invisible College', 'Nullius in verba', loosely translated as to 'Take nobody's word for it', awakened the spirit of research at the Royal Society of London and reveals the Society's desire to be at the frontline of science.

Thanks to these medical men at a time of change, there was a great impact influencing clinical practice in many medical fields. Anaesthesia now bears the fruits of these initial experiments so that ultimately, anaesthetists can provide safe and effective anaesthesia while delivering anaesthetic drugs, intravenous fluids and blood transfusions to the benefit of their patients.

Nowadays, if you walk in hospitals you see patients with lots of tubes, IV catheters and doctors using scopes for diagnostic and therapeutic purposes. Some 85% of hospital in-patients require some form of vascular access device to deliver essential fluids, medication, nutrition and blood products, or to facilitate blood sampling. Worldwide, some 1.75 billion peripheral intravenous catheters (PIVCs) are inserted every year in hospitalised patients, making it the most

frequently performed invasive procedure in a hospital. These PIVCs are essential elements of modern medicine and are often used as an intravenous cannula or drip, and consists of a flexible, hollow PVC tube that is inserted in peripheral veins, most commonly in the hand (metacarpal veins) or forearm (cephalic or basilica veins).

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