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Current Use of Video Assisted Laryngoscopy in Eritrea

A Follow-up Observation after Six Months since Implementation of a Storz CMAC-System

(Karl Storz Endoskope, Tuttlingen, Germany)

In recent years, Video-Assisted Laryngoskopy (VAL) has become the method of choice in Europe and in the USA for the management of unexpected difficult airway scenarios and significantly improved patient safety in Anesthesia. Where out-of-hospital emergency medical treatment is performed by trained medical doctors, VAL could be shown to improve management of difficult airway situations which are known to be more frequent on-scene and due to logistic reasons can not be solved using Fibreoptics or other clinical routines.

Having received one CMAC (Karl Storz Endoskope, Tuttlingen, Germany) VAL system as a generous grant of the manufacturing company, our initiative For-Eritrea was able to deploy this state-of-the-art device in March 2014. The donation originally adressed the College of Health Sciences, Asmara, and the Department of Anaesthesiology (Head: Prof. Dr. W. Elsholz) took responsibility for maintenance and availability for clinical use at various hospitals in Asmara.

The College is equipped with a manikin simulator (SimMan 2, Laerdal, Denmark). Thus, introduction and training for intubation of the trachea using the CMAC was offered to providers of anaesthesia working in Asmara in order to make them familiar with the system. These workshops were attended by nearly the entire staff with about 40 participants. Special attention was given to maintenance and cleaning procedures. The company representative for Africa of Carl Storz has also been given the opportunity to visit Asmara and identified appropriate cleaning agents with regard to their availability in Eritrea as well as he developed cleaning and disinfection procedures.

In a consecutive team visit in October 2014 the CMAC system was demonstrated to be in perfect working condition and complete. One laryngoscopic blade (dBlade) had to be replaced because a lense failure occured due to accidential inappropriate cleaning with an alcoholic agent. No other failure, loss or lack of equipment was reported.

The CMAC was mostly in use in the Orotta National Referral Hospital in Asmara, which is by far the largest hospital in Eritrea. Overall, 20 cases had been documented in which the CMAC was used to overcome difficult airway situations. Two of these cases had not been anticipated by risk pre-assessment and were real emergencies. In one case where intubation of the trachea failed and anaesthesia had to be aborted as the CMAC was unavailable, a consecutive attempt on the next day having the CMAC at hands was started and intubation of the trachea was uneventfull. On several occasions the CMAC had been transported to other hospitals on demand.

In general, feedback given by nurse anaesthetists revealed a high awareness of having the CMAC available to solve difficult airway problems. This even seems to have changed the attitude towards risk pre-assessment, as patients are now examined with special focus on possibly difficult airways in order to plan the clinical use of VAL. There can be no doubt that this adds significantly to safety of anaesthesia. Besides clinical use, the CMAC is frequently serving the College for teaching and evaluation purposes in manikin training for intubation.

Moreover, the head of surgery (Dr. Yoseph Tewolde) reported that surgeons find it easier to schedule operations in patients at higher risk of intubation failure, such as thyroide resections, contractive burns or cancer in the head and neck region, as they know about the CMAC availability to anaesthesia.

In conclusion, VAL gained a high clinical value and appreciation in a comparatively short period of time since implementation. Logistics and maintenance are no major obstacles even in a rather remote african country such as Eritrea with limited supplies and human resources.

Another two CMAC systems have been deployed in October and November 2014. These have been purchased by the "Eritreahilfswerk" with a generous discount granted by Carl Storz. One system is now available at the Halibeth Hospital, which is the second largest hospital in Asmara and too remote to use the existing CMAC on demand. The Halibeth Hosptal has a burns unit and covers a significant workload of emergency operations, so that VAL is of special importance there. The third CMAC will be shared by the ENT department and the Maternity Clinic at the Orotta National Referral Hospital, as both have been identified to have a frequent and high demand for difficult airway management.

With now three CMAC systems, a case reporting protocol can be established in order to evaluate the clinical use of VAL in a setting of a so-called developing country. A study design is currently developed by the College of Health Sciences to evaluate the use of VAL for teaching endotracheal intubation in postgraduate training.

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