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Anesthesiologic Approach on Non-Cardiac Procedure on A Patient with Severe Aortic Stenosis

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Abstract

Administering anesthesia to patients with preexist-ing cardiac disease is an interesting challenge. Most com-mon cause of peri-operative morbidity and mortality in cardiac patients is ischaemic heart disease (IHD). IHD is number one cause of morbidity and mortality all over the world. 73-year-old, male patient, was admitted to the Clinic of Plastic and Reconstructive surgery, with the following diagnosis: Carcinoma cutis exulcerans et sanguinans reg. praeauricularis l.dex. It was quite a challenge for this patient to be led in general anaesthesia, because of all of his conditions: Syndroma myelodisplasticus; St post transplantatio alogenes. HTA. Dementio vascularis. Paraplegia spastica, Coronary artery disease. Aortic stenosis. The condition is often unrecognized before death and post-mortem data suggest an end of life incidence of 1%. We decided to use Remifentanil over Fentanyl, since it has a unique pharmacokinetic profile, with a rapid onset and offset of action and a plasmatic metabolism. Because of the patient's age, medical state, and the Remifentani's effects, we highly recommend this type of anaesthesia.

Keywords: Dementio Vascularis, Logical Diseases, Dementio Vascularis, HTA

1. Introduction

Administering anaesthesia to patients with preexist-ing cardiac disease is an interesting challenge. Most com-mon cause of peri- operative morbidity and mortality in cardiac patients is ischaemic heart disease (IHD). IHD is number one cause of morbidity and mortality all over the world. 73-year-old, male patient, staying in a retirement home, sent from another local hospital, was admitted to the Clinic of Plastic and Reconstructive surgery, with the following diagnosis: Carcinoma cutis exulcerans et sanguinans reg. praeauricularis l.dex. He had this tumor for a while, but for the past two months it started growing, and the last two days started bleeding continuously. In the past seven years, the patient has been treated for his condition-Chronic Myeloid Leukaemia (CML), and five years ago, he had allogenic stem cell transplant from a matched donor. He had been examined in the Hospital for Infect logical diseases, where a relapse on the primary disease was ruled out, and the patient was sent to the Clinic of Plastic and Reconstructive surgery for a local surgical treatment [1-3].

• **Profile of the patient:** Male, 73-year-old, 80kg. Present diseases: Syndroma myelodisplasticus. St post transplantatio alogenes. HTA. Dementio vascularis.

• **Paraplegia Swastika:** Coronary artery disease.

• **Chronic Therapy:** Tbl. Lisinopril á 10mg S. 1X1: Tbl. Clopidogrel á 75mg
S. 1x: Tbl. Acetylsalicylic Acid á 100mg S. 1X1: Tbl Allopurinol á 100mg
S. 1X1: Tbl Pantoprazole á 20mg S. 1X1: Tbl. Prednisolone a 20mg S. 1X1/2; He denies consuming cigarettes or alcohol, or any allergies on food or medicines prior present day [4].

In the anesthesiologic pre-operative checkout, the patient had sinus bradycardia, with HR=45bpm, which led to consulting cardiologist. His ECG has shown a AV block gradus II - Wekenbach. With echocardiography we determined that the patient has aortic stenosis, and EF=56%. He had a hypokinesia on the posterior and the inferior wall of the left ventriculus; IVS hypertrophy; Worsened relaxation, etc. diastolic dysfunction of the left ventriculus; Mitral valve regurgitation. The biggest problem was that he had a severe aortic stenosis, with a peak transvalvular velocity of 4.5 m/s, a mean gradient 83 mmHg, and a valve area of 0.8 cm2. Cardiologist switched the dual anti-platelet therapy to Amp. Clexane á 2x40 IU s.c and added Tbl Atorvastatin á 20mg S. 1X1, Tbl. Spironolactone á 25mg S. 1X1, Tbl. Furosemide a 40 mg. S. 1X1/2. On the chest X-ray, he had a chronic periodontitis, perivascular changes hilo-basal bilateral.

The first complete blood count test that was taken, showed mild signs of anemia, with RBC=3.46 (10^12/L), HGB=109g/L, HCT=0.337rv, Albumines=34 g/l, Total proteins= 63 g/l, CRP= 15.6 mg/L, and his creatinine and urea levels were high, Creatinine=132umol/L, Urea=11.9mmol/L. Only two days after, the new full blood count test showed a big-

ger reduction RBC=3.09 (10^12/L), HGB=97g/L, HCT= 0. 280 rv, PLT= 164 10 ^ 9 / L Albumines= 30 . 88 g/ l , Total proteins=56.83g/l, CRP=55 mg/L, and urea and creatinine levels were in normal range. Five days later, the reduction continued to grow, RBC=3.02 (10^12/L), HGB=93g/L, HCT=0.296rv, PLT=148 10^9/L CRP= 21.4 mg/L, but the proteins were now stabilised. We were monitoring the surgery using Datex Ohmeda monitoring system. Because of the cardiological state, we are following ECG and table and a table of heart action. The starting BP was 230/90, HR=72SpO2=98%, MAP >65mmHg. After induction in anaesthesia, for which we used 1mg of Fentanyl, 40mg of Rocuronium bromide, 1mg of Midazolam, and 100mg of Propofol, and the patient lost consciousness, we did a mechanical ventilation for two minutes with oxygen, then we intubated the patient with No. 8 of laryngeal tubus. We turned the Sevoflurane on 1.5% flow, and on a perfuse, 2mg of Remifentanyl -> 0.050 ηg/kg/h continuously. On the next measurement of the blood pressure, it was already better. The BP dropped to 110/60. We gave 20mg of Famotidine, 40mg of Metilprednizolon and 1g of paracetamol, followed by 1 unit of Plasma and 1 unit of full blood (350ml), that had a previous interreaction. The patient was stable during the whole surgery that lasted for 2hours and 15 minutes, with BP of 120/80, with HR between 65/80, and SpO2=100%. The CO2 didn't go higher than 33, the respiratory rate was at 12, with peak 16, and 475 of Tidal Volume. The PEEP was 5, the 02 was 1.1l/h, Air 1.9 l/h, with flow of 50%. Before waking him up, we gave Enalaprirl á1.25mg i.v to keep the blood pressure in normal range and to prevent heart failure, and Aminophylline a 125mg to provide good bronchodilatation. We gave neostigmine 2.5mg+atropine sulfat 1mg when the patient started breathing on his own, to reverse the effect on the relaxant. We also added 0.5 mg of Fentanyl i.v, for better sedation before waking him up [5].

2. Discussion

It was quite a challenge for this patient to be led in general anaesthesia. We decided to use Remifentanil over Fentanyl because of all of his medical conditions - we needed to keep the mean arterial pressure over 65mm/HG, and we can be sure we will have good enough brain and renal blood perfusion. Remifentanil has a unique pharmacokinetic profile, with a rapid onset and offset of action and a plasmatic metabolism. In surgery, many randomized controlled trials demonstrated that the potential benefits of the use of remifentanil not only include a profound protection against intraoperative stressful stimuli, but also rapid postoperative recovery, early weaning from mechanical ventilation, and extubation. A study, "Myocardial consequences of remifentanil in patients with coronary artery disease", has shown that high-dose of remifentanil anaesthesia significantly reduced cardiac index (CI) (-25%) as a consequence of a decrease in stroke volume index (SVI) (-14%) and heart rate (-13%). Mean arterial pressure (MAP) was 30% lower than that in the awake patient. Myocardial blood flow and myocardial oxygen uptake (MVO2) decreased by 30% and 42%, respectively. In contrast to high- dose remifentanil anaesthesia, systemic vascular resistance index (-14%) during remifentanil / propofol anaesthesia was significantly lower than that in the awake patient. Other haemodynamic variables, and myocardial blood flow and MVO2, did not significantly differ from the high-dose remifentanil period. In conclusion, high-dose remifentanil reduces SVI, heart rate, MAP, myocardial blood flow and MVO2 and its effects do not differ from those of remifentanil/propofol anaesthesia. The pharmacodynamic interaction between sevoflurane and remifentanil is strongly synergistic for both the hypnotic and the analgesic components of anesthesia [5-7].

3. Conclusion

The whole surgery was neat, both for anaesthesiologist and surgeons. The patient woke up quickly, stable, with no pain. The patient was stable during the whole surgery, took the anaesthesia well. Based on our point of view and experience, using remifentanil for anaesthesia in these patients does not only keep the blood pressure and the whole cardiological state stable, but also the patient's comfort and satisfaction are maximised, and the overall image is great. Because of the patient's age and medical state, we highly recommend this type of anaesthesia [8].

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