

New Method of Tracheal Allotransplantation

Evgeny A. Tarabrin, Sergey V. Golovinskiy

Academic adviser: Vladimir Parshin, MD, PhD, Professor
Russian Scientific Center of Surgery, Moscow, Russian Federation

Most tracheal lesions can be resected and primary reconstruction safely effected. But reconstruction of long-segment tracheal defects requires a vascularized allograft. We report result our experimental and anatomical studies and successful tracheal allotransplantation in a clinic. Our method of tracheal transplantation uses the composite thyrotracheal allograft revascularized by both inferior thyroid arteries and veins. The first step includes harvesting the trachea from a donor. For this purpose the aortic arch cannulation was performed, and then it was ligated on the level of ascending and descending branches, the superior vena cava was ligated and dissected above the ligated site. Through the aortal catheter stream introduction of the preservative solution was performed. Simultaneously a perfusion of shoulder-girdle, head, and neck and mediastinum organs (including the trachea) was performed. This enabled quick removal of the donor complex together with muscles, vessels and mediastinum cellular tissue. Further preparation of the graft was performed *ex vivo*. The next step includes tracheal resection and thyrotracheal complex transplantation. The graft revascularization was performed through the brachiocephalic trunk or carotid arteries of the recipient. Venous drainage was restored by means of suturing the inferior thyroid vein of the grafted complex with the left brachiocephalic vein of the recipient. Results: The findings of the experimental anatomical study made it possible to conduct this operation in a clinical setting in a patient with subtotal tracheal pathology. The thyrotracheal complex removal was completed using our protocol. Organ perfusion was performed using the Custodiol solution (Dr Franz Kohler Chemia GMBH, Germany). The trachea of the recipient was dissected at the level of the first intercartilagenous gap. In the caudal segment, the trachea was resected from the right edge of the last cartilagenous tracheal ring, and resection of the tracheobronchial triangle was performed on the left wall. After revascularization of the graft, pulsation of the lower thyroid arteries was satisfactory, quick filling of the lower thyroid vein was noted. Fibrotracheoscopy was confirmed restoration of the blood flow by the changed coloring of the tracheal mucosa. To prevent postoperative complications the patient received antibacterial, antimycotic, antiviral and immunosuppressing therapy. Since the discharge, the patient has had no further episodes of dyspnoea. Three years after tracheal reconstruction, the patient was satisfied with the outcome. Conclusion: Our experimental studies have paved the way for transplantation of the trachea with adequate supportive blood flow in a clinical setting. The practical experience supported the feasibility of the concept that tracheal transplantation is a viable option. This method of treatment might help patients who are currently considered incurable.

Optimisation of Surgical Repair of Tetralogy of Fallot

Cerevan Eugen, Mogaldea Alexandru, Borsevschi Vera, Zastavnitchi Mariana

Academic adviser: Ciubotaru Anatol M.D., Ph.D, Professor, Repin Oleg, M.D.
State Medical and Pharmaceutical University "Nicolae Testemitanu", Chisinau, Republic of Moldova

The aim of study was the evaluation of the surgical treatment of the Tetralogy of Fallot (TF), to emphasize the technical and age particularities, in order to develop a clear tactic in the future treatment and to study the opportunity of this patients in activity. To achieve our objective we have analyzed the experience of the last 10 years, during which 182 patients were operated with TF (to the 61 patients have been made the palliative procedures and to the 121 - the radical correction). The patient's age was between 3 and 42 years. The data were studied from the observation and outpatient

files of patients evaluated in the dynamic after ECHOC and clinical data. The standard preoperative patients have had performed: ECG, ECHOC, before being indicated the cardiac cateterism and angiography. The ECHOC investigations have been made repeatedly over 10 days postoperative, 1 month, 3 months, 6 months and then once a year to analyze the dynamics of the remaining gradient caused by the obstruction of right ventricular output tract (ORVOT) and material used in plastic right ventricular output tract (RVOT) and pulmonary artery (PA). Between the patients with radical correction 43 were re-operated after the inter-systemic anastomosis in the history, to 2 of which were performed 2-stage palliative, to one - 3 steps out in order with unfavourable pulmonary artery anatomy. In 2 cases for the anastomosis ligature and plastic of AP branch circulatory arrest was performed. For the ventricular outlet tract plasty have been used these methods: patch of outlet tract ventricular in 38.8%, 47.9% transanular patch, implantation of homograft 4.1%, 4.96% suture of the tract, corrected by atrial and pulmonary artery approach in 4.24% cases. The transanular patch has been applied in patients with intersystemic anastomosis previously in 45% cases and in 52% cases of primary radical correction. The relationship between ventricular and aortic pressure after the correction was 0.53 in the group with transanular patch compared with 0.45 in the group with resection of the ring. Postoperative lethality represented 20.6%, with its subsequent reduction in the last 2 years up to 4.1%. The favorable functional result was obtained in patients with implanted homograft and suturing the right ventricular outflow tract. The regurgitation at the pulmonary artery was observed in patients with transanular patch plasty which presents a risk factor for repeated surgery. The surgical treatment depends of two important things: proper removal ORVOT without compromising pump function and closure of VSD. The application of the intersystemic anastomosis as first stage, creating favorable conditions for radical correction, reduces the need to transanular patch application. The radical correction applied for children under 3 years cause growth of postoperative lethality in the absence of the necessary endowment profile sections.

Induced Pain in Intensive Care Unit: Are there Sex Differences?

Adrian Belii, Natalia Covrighin, Cristina Eremia, Marina Vahnovan

State Medical and Pharmaceutical University "Nicolae Testemitanu", Chisinau, Republic of Moldova

The induced pain (procedural pain) is a short-term pain caused by a doctor or other medical staff during therapeutic or diagnostic action in foreseeable circumstances and likely to be prevented by adopted measures. Induced pain prevalence is between 43-56% for adults, 59% – for children and up to 93% – for newborns. Over 660 painful gestures were identified, with an average of 1.8 gestures per patient per day. From all studied painful gestures, intense pain and extremely intense pain was attested at 57% of patients. Scheduled treatment of postoperative pain has no influence on induced pain. So, it is imperative to ensure additional analgesic treatment. At our knowledge, the induced pain was no subject to any study in Republic of Moldova till now. Therefore, we aimed to describe incidence and pain intensity for some sources of induced pain in the intensive care unit (ICU) and to identify any gender differences. The study included 99 adult patients (M – 39 F – 60), hospitalized postoperatively in ICU. Patients completed a specifically designed questionnaire, where they noted supported painfully diagnostic or therapeutic interventions and also, the intensity of pain (assessed by visual-rating score VRS 0-10). Statistical tests used: t-Student, Chi2 with Yates correction. One $p < 0.05$ was considered statistically significant. Both groups (M vs. F) were comparable according to level of education, ASA score, and range of interventions. Instead, F group were significantly older (61.7 ± 14.7 [95CI: 57,9-65,4] vs 47.1 ± 15.0 [95CI: 42,2-52,0] years, $p < 0.0001$). Spectrum and incidence of induced pain sources were recorded (M vs F): intravenous injection (97-98%), intramuscular injection (87-95%), bladder catheterization (79-88%), dressings (79-83%), wound drains (59-60%), neuraxial puncture (49-48 %), peripheral venous line (51-48%), tracheal tube (36-47%), naso-gastric tube (33-30%), arterial puncture (18-23%) with no significant differences between