# Anesthesia for percutaneous transcatheter closure of atrial septal defects in adults

## *Erişkin hastalarda perkütan transkateter atriyal septal defekt kapatılmasında anestezi*

The percutaneous transcatheter device closure of cardiac and extracardiac defects is a preferred method because of reduced morbidity and mortality, shorter hospital stay, superior cosmetic results, avoidance of cardiopulmonary bypass, decreased cost and less postoperative pain (1, 2). The aim of our study was to investigate the anesthetic management of percutaneous closure of atrial septal defects (ASD).

A retrospective review of anesthesia management data of 106 patients who underwent transcatheter closure of ASD between the years 2004-2009 was conducted. Demographic data, systolic pulmonary artery pressure, procedure time, anesthesia time, ASD size, device size, incidence of failure to deploy the device, incidence of need for surgery, the anesthetic drugs used, complications seen during or after the procedure and hospitalization time in the cardiac intensive care unit (ICU) were recorded.

The mean age of 106 patients (44 men and 62 women) was 37.4±14.04 years. The mean procedure and anesthesia time were 36.5±16.8 and 45.6±18.4 minutes. Mean size of the atrial septal defects and the septal occluder devices were 16.0±4.4 mm and 19.9±5.5 mm. Amplatzer septal occluder was used in 94.3% and Occlutech Figulla septal occluder was used in 5.7% of patients. All procedures were performed under general anesthesia. The procedure was finished without any complications in 103 patients. Two patients had severe bradycardia. Trombus formation on the device was seen in one patient. No major arrhythmias or hypotension occurred during the procedure. After the procedure, all patients were hospitalized in the cardiac intensive care unit with a median discharge time of 12 hours (6-96 hours). Ninety-five patients (88.8%) were discharged from the hospital without any complications. The mortality rate was 0.

Many anesthetic drugs have been used for diagnostic and interventional cardiac catheterizations. Tosun et al. (3) compared dexmedetomidine-ketamine and propofol-ketamine combinations in spontaneously breathing children undergoing cardiac catheterization and dexmedetomidine-ketamine combination resulted with insufficient sedation and analgesia and a longer recovery time. Koruk et al. (4) showed that both dexmedetomidine and ketamine used with propofol were well tolerated in children who required ASD closure. Kogan et al. (5) used propofol-ketamine mixture safely in children undergoing cardiac catheterization. Laussen et al. (6) used sedation for the closure of muscular VSDs in their series, but later they changed their anesthetic management to general anesthesia because of high urgent intubation need due to hemodynamic instability. We used propofol induction in adults with 1 µg/kg fentanyl as our routine anesthetic management. We did not see hemodynamic instability in any of the patients during induction and also we concluded that rapid recovery with propofol was an advantage for this patient group.

The experience with the anesthetic management of percutaneous transcatheter closure of ASD is improving with the new technology of devices and delivery systems. We concluded that general anesthesia is a more safe and comfortable method for the anesthetic management of percutaneous ASD closure because of the risk of hemodynamic instability, the need for a immobile patient, discomfort and embarrassing feeling of transesophageal echocardiography.

**Acknowledgement**

Thanks to chief of Anesthesiology and Reanimation Department Prof. Dr. Ülkü Aypar and chief of Cardiology Department Prof. Dr. Ali Oto and Prof. Dr. Kudret Aytemir for their great support.

**Heves Karagöz, Aysun Ankay Yılbaş[1], Banu Ayhan, Ergün Barış Kaya*, Meral Kanbak**
**Departments of Anesthesiology and Reanimation and *Adult Cardiology, Faculty of Medicine, Hacettepe University, Ankara**
**[1]Clinic of Anesthesiology and Reanimation, Akçaabat Haçkalı Baba Devlet Hastanesi, Trabzon-*Turkey***

## References

1. Kapoor MC, Sharma S, Sharma VK, Dugal JS, Singh C. Anesthesia for percutaneous transcatheter closure of perimembranous ventricular septal defect. J Cardiothorac Vasc Anesth 2006; 20: 202-8. [CrossRef]
2. Alidoosti M, Jam MS, Dehkordi MR. Successful deployment of an atrial septal occluder device in a patient with an insufficient postero-superior defect rim. Anadolu Kardiyol Derg 2008; 8: 456-8.
3. Tosun Z, Akin A, Güler G, Esmaoğlu A, Boyacı A. Dexmedetomidine-ketamine and propofol-ketamine combinations for anesthesia in spontaneously breathing pediatric patients undergoing cardiac catheterization. J Cardiothorac Vasc Anesth 2006; 20: 515-9. [CrossRef]
4. Koruk S, Mizrak A, Kaya Uğur B, İlhan O, Başpınar O, Öner U. Propofol/dexmedetomidine and propofol/ketamine combinations for anesthesia in pediatric patients undergoing transcatheter atrial septal defect closure: a prospective randomized study. Clin Ther 2010; 32: 701-9. [CrossRef]
5. Kogan A, Efrat R, Katz J, Vidne BA. Propofol-ketamine mixture for anesthesia in pediatric patients undergoing cardiac catheterization. J Cardiothorac Vasc Anesth 2003; 17: 691-3. [CrossRef]
6. Laussen PC, Hansen DD, Perry SB, Fox ML, Javorski JJ, et al. Transcatheter closure of ventricular septal defects: hemodynamic instability and anesthetic management. Anesth Analg 1995; 80: 1076-82. [CrossRef]

**Address for Correspondence/Yazışma Adresi:** Dr. Aysun Ankay Yılbaş
Akcaabat Hackalı Baba Devlet Hastanesi, Trabzon-*Türkiye*
Phone: +90 462 227 77 80 Fax: +90 462 227 77 89
E-mail: aysunankay@hotmail.com
**Available Online Date/Çevrimiçi Yayın Tarihi:** 13.04.2012


*doi:10.5152/akd.2012.111*

# Simultaneous percutaneous peripheral arterial intervention and transfemoral transcatheter aortic valve implantation in bilateral iliac artery occlusive disease

## *Bilateral iliyak arter darlığında eşzamanlı periferik perkütan arteryal girişim ve transfemoral transkateter aort kapak implantasyonu*

A patient with severe aortic valve stenosis and bilateral iliac artery occlusive disease was successfully treated by percutaneous balloon dilatation of the left common and external iliac arteries performed together with transfemoral transcatheter aortic valve implantation (TAVI). We therefore conclude that combined percutaneous peripheral