

Table 1. Electrocardiographic features in the groups

Variables	Control group (n=93)	Jet pilots group (n=71)	Helicopter pilots group (n=167)	p	p1	p2	p3
Harte rate, bpm	75.1±13.1	66±10.8	66.8±10.8	<0.001	<0.001	<0.001	0.87
QT, ms	402.9±18.4	393.6±22.1	392.1±22	<0.001	0.015	<0.001	0.87
PR, ms	145.5±19.4	154.8±18.6	149.4±20.4	0.01	0.009	0.29	0.13
QRS, ms	88.6±10.5	100.2±10.3	99.0±10.7	<0.001	<0.001	<0.001	0.69
QRS axis degree	43.2±31.5	52.1±39.1	55.1±28.8	0.02	0.18	0.01	0.79
Voltage V5R, mv	1.4±0.5	1.5±0.5	1.4±0.4	0.18	0.21	0.97	0.22
Voltage V1S, mv	0.7±0.1	0.8±0.3	0.9±0.4	0.002	0.29	0.002	0.28
P-wave amplitude, mv	0.13±0.03	0.13±0.03	0.14±0.03	0.24	0.94	0.035	0.32
P maximum, ms	95.3±10.8	86.6±9.4	87.8±10.4	<0.001	<0.001	<0.001	0.69
P minimum, ms	66.9±9.8	60.2±8.5	59.7±8.65	<0.001	<0.001	<0.001	0.90
Pwd, ms	28.4±7.5	26.18±7.6	27.8±7.6	0.17	0.17	0.86	0.28
QTcd, ms	27.9±5.6	29.2±5.8	28.9±5.8	0.31	0.33	0.41	0.91
Incomplete RBB, n	4 (4.13)	10 (14.1)	10 (6)	0.04			

Data are given as mean±SD or as n (%) - P1 - Comparison of variables between the control and jet pilot groups,
P2 - Comparison of variables between the control and helicopter pilots group, P3 - Comparison of variables between the jet and helicopter pilots groups
Pwd - P - wave dispersion, QTcd - corrected QT dispersion

Mehmet Gül, Hüseyin Uyarel¹, Musa Salmanoğlu², Murat Uğur², Hüseyin Aksu

Clinic of Cardiology, İstanbul Mehmet Akif Ersoy Cardiovascular Surgery Training and Research Hospital, İstanbul-Turkey

¹Department of Cardiology, Faculty of Medicine, Bezmialem Vakıf University, İstanbul-Turkey

²Department of Internal Medicine, Merzifon Military Hospital, Amasya-Turkey

References

1. Gül M, Salmanoğlu M. Long-term high +Gz effects on cardiac functions in the pilots. *Anadolu Kardiyol Derg* 2012; 12: 675.
2. Koşar F, Aksoy Y, Arı F, Keskin L, Şahin İ. P-wave duration and dispersion in obese subjects. *Ann Noninvasive Electrocardiol* 2008; 13: 3-7. [CrossRef]
3. Özer N, Aytemir K, Atalar E, Sade E, Aksöyek S, Övünç K, et al. P wave dispersion in hypertensive patients with paroxysmal atrial fibrillation. *Pacing Clin Electrophysiol* 2000; 23: 1859-62.
4. Başar N, Malcok Gürel O, Özcan F, Özlü MF, Biçer Yeşilay A, Çağlı K, et al. Diagnostic accuracy of P-wave dispersion in prediction of maintenance of sinus rhythm after external cardioversion of atrial fibrillation. *Anadolu Kardiyol Derg* 2011; 11: 34-8. [CrossRef]
5. Sarı İ, Zengin S, Özer O, Davutoğlu V, Yıldırım C, Aksoy M. Chronic carbon monoxide exposure increases electrocardiographic P-wave and QT dispersion. *Inhal Toxicol* 2008; 20: 879-84. [CrossRef]

Address for Correspondence/Yazışma Adresi: Dr. Mehmet Gül
İstanbul Mehmet Akif Ersoy Eğitim Araştırma Hastanesi, İstasyon
Mah. Turgut Özal Bulvarı No:11 Küçükçekmece, İstanbul-Türkiye
Phone: +90 212 692 20 00
E-mail: drmg23@gmail.com



Available Online Date/Çevrimiçi Yayın Tarihi: 22.04.2013

©Telif Hakkı 2013 AVES Yayıncılık Ltd. Şti. - Makale metnine www.anakarder.com web sayfasından ulaşılabilir.

©Copyright 2013 by AVES Yayıncılık Ltd. - Available on-line at www.anakarder.com
doi:10.5152/akd.2013.124

Percutaneous pulmonary valve implantation; first experiences from Turkey

Perkütan pulmoner kapak implantasyonu; Türkiye'den ilk deneyimler

Since many years, conduits have been used by surgeons in the treatment of certain congenital heart diseases. However all conduits become dysfunctional by the time and should be replaced (1). Percutaneous pulmonary valve implantation (PPVI) is an alternative treatment option to surgery (2, 3). In this article, we aimed to present early and short term results of PPVI from our center.

There were 10 implantations performed since October 2010 to June 2012. Eight of the patients were males and two were female, aged between 13 and 39 years (19.2±7.8 years), and weighed between 32 and 76 kg (58.2±14.1kg). Informed consent form was obtained from all patients before procedure. Patients' diagnoses were within a wide spectrum, including tetralogy of Fallot to corrected transposition of great arteries. Different types of conduit were used in order to establish right ventricle to pulmonary artery continuity, including; Freestyle conduit, in three patients; Gore-tex conduit were used in two patients; a Contegra conduit was used in one patient; a Hemashield, Xenograft and pulmonary homograft were used in the others. A native pulmonary valve was present in one of the patients. Conduit dysfunction was defined as pulmonary regurgitation more than mild with/without stenosis (4). Two of the patients who underwent PPVI had significant pulmonary insufficiency, while the remaining eight had both insufficiency and obstruction.

Edwards Sapien transcatheter heart valves (Edwards Lifesciences LLC, IrvineCalifornia) were used in seven of the patients, while Melody valves (Medtronic, Inc., Minneapolis, Minnesota) were used in the remaining three for implantation. The selection of the implanted valve type was based upon the conduit size and the lesion type.

Right ventricular (RV) pressure evidently decreased in all patients having had high RV pressure before procedure, except in one patient who had pulmonary hypertension. The RV pressure value and RV/aorta pressure ratio

measured following the intervention were significantly lower than pre-intervention values ($p<0.005$ and $p<0.001$, respectively). Except for patient who had native pulmonary artery, pulmonary insufficiency was not detected in any of the patients following the interventional treatment.

Duration of the procedure was 175.55 ± 40.5 minutes, mean radiation dosage was 11352 ± 5341 cyg/cm², and hospitalization period following intervention was 2 ± 0.5 days. No major complications developed in any of the patients.

Median follow-up duration was 9.1 ± 7.4 months (3-24 months). Functional capacities and effort tests of patients were evaluated prior to and 3 months after the intervention. Six of 8 patients who completed the three months of follow-up were NYHA-3, and 2 were NYHA-2 pre-intervention. Six of the patients regressed to NYHA-1, and 2 patients to NYHA-2 after the intervention, and an increase in functional capacity was observed in all patients. Significant increases in physical exercise capacities on cardiopulmonary exercise test at the end of the 3rd month were observed in all patients. None of the patients developed restenosis, and stent fracture was not observed in any of them. Valve sufficiency was outstanding in all patients.

In conclusion, the early-term results of the first experiences from Turkey about PPVI are encouraging. PPVI successfully reduces RV pressure, and assures valve competence and clinical improvement. It is highly safe in selected patients, a good alternative to surgical pulmonary valve and conduit replacement, and should be the first option to be considered where feasible.

Ender Ödemiş, Alper Güzeltaş, Murat Saygı, İhsan Bakır*
Departments of Pediatric Cardiology and *Pediatric Cardiothoracic Surgery, Istanbul Mehmet Akif Ersoy Thoracic and Cardiovascular Surgery Center and Research Hospital, Istanbul-Turkey

References

1. Homann M, Haehnel JC, Mendler N, Paek SU, Holper K, Meisner H, et al. Reconstruction of the RVOT with valved biological conduits: 25 years experience with allografts and xenografts. *Eur J Cardiothorac Surg* 2000; 17: 624-30. [CrossRef]
2. Bonhoeffer P, Boudjemline Y, Saliba Z, Merckx J, Aggoun Y, Bonnet D, et al. Percutaneous replacement of pulmonary valve in a right-ventricle to pulmonary artery prosthetic conduit with valve dysfunction. *Lancet* 2000; 356: 1403-5. [CrossRef]
3. Nordmeyer J, Coats L, Bonhoeffer P. Current experience with percutaneous pulmonary valve implantation. *Semin Thorac Cardiovasc Surg* 2006; 18: 122-5. [CrossRef]
4. Khambadkone S, Coats L, Taylor A, Boudjemline Y, Derrick G, Tsang V, et al. Percutaneous pulmonary valve implantation in humans: results in 59 consecutive patients. *Circulation* 2005; 112: 1189-97. [CrossRef]

Address for Correspondence/Yazışma Adresi: Dr. Ender Ödemiş
Atakent Mah. İkitelli Cad. İhlamurevleri Sitesi Küçükçekmece,
İstanbul-Türkiye Phone: +90 212 692 00 00-1154
E-mail: odemiserender@gmail.com

Available Online Date/Çevrimiçi Yayın Tarihi: 22.04.2013

©Telif Hakkı 2013 AVES Yayıncılık Ltd. Şti. - Makale metnine www.anakarder.com web sayfasından ulaşılabilir.

©Copyright 2013 by AVES Yayıncılık Ltd. - Available on-line at www.anakarder.com
doi:10.5152/akd.2013.125



Extent of angiographic coronary artery disease in khat users

Khat kullanıcılarında koroner arter hastalığının anjiyografik yaygınlığı

The chief active ingredients in khat are cathinone, cathine, and norephedrine. Cathinone, the prime active substance in khat leaves, is

structurally and functionally similar to amphetamine (1). One study suggested that khat use is an independent risk factor for the development of acute myocardial infarction (2). In another study, khat users presenting with acute coronary syndrome had worse in-hospital and one-year outcome, as compared with non-users (3). In a prospective study, we sought to explore any possible relationship between khat use and the extent of coronary artery disease (CAD) in Yemeni patients undergoing elective coronary catheterization.

We enrolled 100 consecutive patients who underwent elective coronary catheterization in the catheterization laboratories of Sanaa University during the period from November 2010 to May 2011. Patients underwent elective coronary catheterization for suspected CAD, or recurrent symptoms despite adequate anti-ischemic therapy. Patients were considered eligible for enrollment if they had angiographically documented significant stenosis, defined as $\geq 50\%$ obstruction of at least one sizable coronary artery (measuring ≥ 2.5 mm), seen in 2 different projections, or $\geq 50\%$ luminal obstruction of the left main coronary artery. History of khat chewing was obtained and recorded at the time of presentation. An informed consent was obtained, and the protocol was approved by our Human Research Committee. Coronary angiography was performed using the standard technique, and the percent diameter stenosis was measured using quantitative coronary analysis. Patients were assigned according to the number of coronary arteries affected by significant stenosis as having single-vessel disease, two-vessel disease, or multi-vessel disease. Significant stenosis of the left main coronary artery was assigned as two-vessel disease. Multi-vessel CAD was defined as either significant stenosis of >2 sizable coronary arteries, or significant stenosis of both the left main coronary artery and the right coronary artery.

The mean age of the whole series was 54.7 ± 11.8 years (16% females); 86% were khat users. Fifty-four percent were smokers, 15% hypertensive, and 11% diabetic. The mean body mass index was 24.7 ± 3.6 . Khat users were more likely to be smoker as compared with non-users ($p=0.0001$), whereas non-users had a greater body mass index ($p=0.04$). Total cholesterol was higher in non-users ($p=0.02$). Yet, all other clinical as well as laboratory parameters were balanced between the two groups ($p>0.05$ for all). The distribution of single-vessel, two-vessel, and multi-vessel disease was matched between the two groups ($p>0.05$ for all). No correlation was found between the extent of coronary artery disease and any of the clinical, or laboratory data.

It was hypothesized that long-term exposure to excessive catecholamines might induce or accelerate atherosclerosis in khat users. In two case series of acute coronary syndrome associated with methamphetamine use, most patients had obstructive CAD (4, 5). In a recent substudy of the GULF-RACE registry, over 80% of khat users who presenting with acute coronary syndrome and underwent coronary angiography had significant coronary artery stenosis (3). In the latter report, khat users were older, more often males, and less likely to have cardiovascular risk factors or a history of coronary artery disease, more likely to present late, to have a higher heart rate and more advanced Killip class on admission, and to present with ST-segment-elevation myocardial infarction. Overall, khat users had higher risk of death, recurrent myocardial ischemia, cardiogenic shock, ventricular arrhythmia, and stroke as compared with non-users. After adjustment for baseline variability, khat use was an independent risk factor for death, recurrent ischemia, heart failure, and stroke. Nevertheless, the current study did not show any substantial difference in the extent of coronary atherosclerosis between khat users and non-users. Probably, cathinone acts