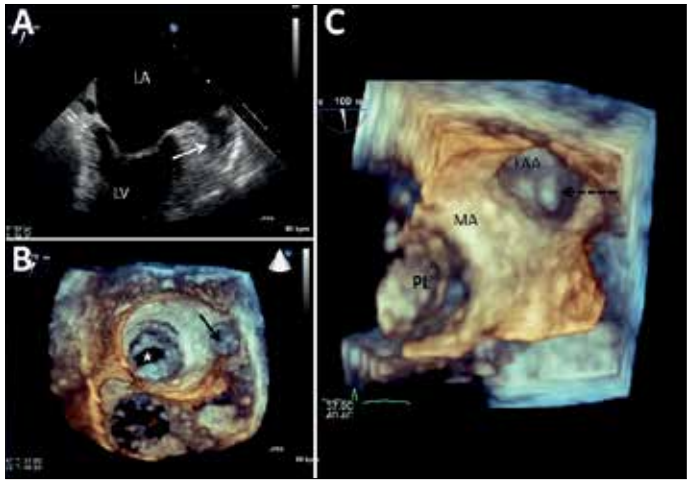


**Figure 2. 2D (A) and 3D (B and C) transesophageal echocardiographic views of a thrombus (arrows) in left atrial appendix (LAA)**
LA - left atrium, LV - left ventricle, MA - mitral annulus, PL - posterior mitral valve leaflet

responding video/movie images at www.anakarder.com). Since the patient had no risk factors and was only 32 years old, we assumed that the thrombus from the LAA had probably embolized the distal coronary artery. We decided to follow up the patient for mitral valve and coronary artery disease. She was discharged with B-blocker, angiotensin converting enzyme inhibitor and warfarin therapy.

Common cardiac causes of systemic embolism are ventricular mural thrombus, LAA thrombus secondary to valvular pathology or chronic atrial fibrillation, prosthetic valves or calcified leaflets, cardiac tumors, infective endocarditis, paradoxical embolism through an atrial septal defect or patent foramen ovale (1). In patients with mitral stenosis, systemic embolization of an atrial thrombus is rather frequent and the incidence is 10-20% (2). The risk of embolization increases with atrial fibrillation and age; however, embolization can be seen even in patients with sinus rhythm (3). Prevalence of coronary embolization in patients with mitral stenosis is unknown but a few cases have been reported in literature (4).

Although the arterial embolization in mitral stenosis is frequent, coronary emboli is rare due to the origination of the coronary ostia just behind the cusps of aortic valve, angulations of the coronary arteries and high velocity of the flow in the proximal aorta. Circumflex artery runs at a 90 -degree angle from the left main coronary artery, and as a result, embolizations to the left system involving the circumflex artery are rare (5).

Diagnostic challenge in patients thought to have coronary embolism originates from the difficulty to distinguish whether the thrombus had embolized to the coronary bed, or was formed in the coronary arteries due coronary atherosclerosis and other in situ causes. Risk factors, history of hereditary coagulopathies, presence of atherosclerosis and as we have experienced in our case, the predisposition for cardiac thrombus formation could help in this situation. Moreover, intravascular ultrasound (IVUS) could be used to distinguish between ACS due to plaque rupture and coronary embolization.

**Arzu Kalaycı, Suzan Akpınar, Ahmet Güler, Can Yücel Karabay**
**Clinic of Cardiology, Kartal Koşuyolu Heart and Research Hospital, İstanbul-*Turkey***

**Video 1.** On transthoracic echocardiographic examination (TTE), left ventricular ejection fraction was normal but there was mitral stenosis
**Video 2.** Coronary angiography showed that the patient had normal coronary arteries except for a total occlusion in the distal obtuse marginal branch of circumflex artery
**Video 3.** 2D-Transesophageal echocardiogram showing left atrial appendix thrombus and spontaneous echo contrast in LAA
LAA - left atrial appendix
**Video 4.** 3D-Transesophageal echocardiogram showing left atrial appendix thrombus and spontaneous echo contrast in LAA.
LAA - left atrial appendix

## References

1. Charles RG, Epstein EJ. Diagnosis of coronary embolism: a review. J R Soc Med 1983; 76: 863-9.
2. Coulshed N, Epstein EJ, McKendrick CS, Galloway RW, Walker E. Systemic embolism in mitral valve disease. Br Heart J 1970; 32: 26-34. [CrossRef]
3. Peverill RE, Harper RW, Gelman J, Gan TE, Harris G, Smolich JJ. Determinants of increased regional left atrial coagulation activity in patients with mitral stenosis. Circulation 1996; 94: 331-9. [CrossRef]
4. Liang M, Kelly D, Puri A, Devlin G. Mitral stenosis as a risk factor for embolic myocardial infarction-anticoagulation for some patients, individual treatment for all. Heart Lung Circ 2011; 20: 728-30. [CrossRef]
5. Bawell MB, Shrader EL, Moragues V. Coronary embolism. Circulation 1956; 14: 1159-63. [CrossRef]

**Address for Correspondence/Yazışma Adresi:** Dr. Can Yücel Karabay
Kartal Koşuyolu Eğitim ve Araştırma Hastanesi, Kardiyoloji Kliniği, 34846, Kartal, İstanbul-*Türkiye*
Phone: +90 216 459 40 41 Fax: +90 216 459 63 21
E-mail: karabaymd@yahoo.com
**Available Online Date/Çevrimiçi Yayın Tarihi:** 16.11.2012


*doi:10.5152/akd.2013.025*

# Psychological problems in patients awaiting coronary angiography: a preliminary study

## *Koroner anjiyografiyi bekleyen hastalarda psikolojik problemler: Bir ön çalışma*

Coronary angiography (CA) is the gold standard for diagnosis of coronary artery disease (CAD) (1, 2). Currently, in many centers in Iran CA has become a main diagnostic procedure for diagnosis of CAD (1). CA is very stressful procedure for most patients (3). Patients experience psychological problems and consequently hemodynamic instability in response to an invasive CA (2, 4). Many studies investigated patients' anxiety before CA and used of interventions to reduce this problem (3, 5), but assessment of stress, anxiety and depression of patients awaiting elective CA in our country has not yet been investigated.

The present study is a descriptive cross sectional study conducted in southeast Iran. From January to April 2009, patients aged 25 to 75 years, free of known psychiatric disorders, without history of previous CA and free of taking psychotropic drugs recruited for this study. After admission to the ward, the purpose of the study was explained. In addition, informed written consent form was completed by all the patients. Psychological variables as stress, anxiety and depression were collected by interview. The depression, anxiety, stress scale -21 (DASS-21) was used for assessment of psychological problems. This tool is a widely used scale for measuring depression, anxiety and stress in adults (4). For analysis of data, frequencies, mean and standard deviation were reported. Chi-square test and correlation coefficient test

were performed to comparison of DAS based on sex, job, marital status and other demographic data. The level of significance was set at <0.05.

The mean and standard deviation age of 128 patients included in this preliminary study was 53.23 (SD=9.51). In the assessment of psychological variables, the results of this preliminary study showed that the abnormal levels of stress, anxiety and depression in patients awaiting CA were 97.6% (40.6% moderate, 57.0% severe), 66.4% anxiety (55.5% moderate, 10.9% severe) and 20.3%, respectively.

The differences between the levels of anxiety and stress in male and female was statistically significant (p=.000) and stress (p=.04). Also, a statistically significant was seen between marital status and anxiety level (p=.000).

The findings of this preliminary study showed that the patients awaiting elective CA experienced higher levels of psychological problems. In other studies results showed that the anxiety and stress of patients before CA was high (3, 5). Harkness et al. (6) concluded that waiting for cardiac catheterization can cause anxiety of patients. In a qualitative study by Beckerman et al. (7), anxiety of patients before cardiac catheterization was related to physical discomfort and fear. Anxiety of patients waiting for CA may be related to lack of knowledge and uncertainty (8). In this study, we assessed the levels of psychological variables at the admission time to the wards and most of the patients were not informed about the procedure of CA.

It is necessary to inform patients waiting for CA about procedure and psychological support for decrease in the levels of anxiety, stress and depression of these patients. The nursing cares before CA should focus on informing and support of patients.

**Nahid Jamshidi, Abbas Abbaszadeh[1], Majid Najafi Kalyani[2]**
**Department of Postgraduate Studies, Fatemeh (P.B.U.H) Nursing & Midwifery School, Shiraz University of Medical Sciences, Shiraz-*Iran***
**[1]Department of Medical-Surgical Nursing, Razi Nursing School, Kerman University of Medical Sciences, Kerman-*Iran***
**[2]Department of Nursing, Fasa University of Medical Sciences, Fasa-*Iran***

## References

1. Rezaei-Adaryani M, Ahmadi F, Asghari-Jafarabadi M. The effect of changing position and early ambulation after cardiac catheterization on patients' outcomes: a single-blind randomized controlled trial. Int J Nurs Stud 2009; 46: 1047-53. [CrossRef]
2. Chair SY, Li KM, Wong SW. Factors that affect back pain among Hong Kong Chinese patients after cardiac catheterization. Eur J Cardiovasc Nur 2004; 3: 279-85. [CrossRef]
3. Ruffinengo C, Versino E, Renga G. Effectiveness of an informative video on reducing anxiety levels in patients undergoing elective coronarography: an RCT. Eur J Cardiovasc Nur 2009; 8: 57-61. [CrossRef]
4. Jamshidi N, Abbaszadeh A, Kalyani MN. Effects of video information on anxiety, stress and depression of patients undergoing coronary angiography. Pak J Med Sci 2009; 25: 901-5.
5. Phillipe F, Meney M, Larrazet F, Ben-Abderrazak F, Dibie A, Meziane T, et al. Effects of video information in patients undergoing coronary angiography. Arch Mal Coeur Vaiss 2006; 99: 95-101.
6. Harkness K, Morrow L, Smith K, Kiczula M, Arthur HM. The effect of early education on patient anxiety while waiting for elective cardiac catheterization. Eur J Cardiovasc Nur 2003; 2: 113-21. [CrossRef]
7. Beckerman A, Grossman D, Marquez L. Cardiac catheterization: the patients' perspective. Heart Lung 1995; 24: 213-9. [CrossRef]
8. Uzun S, Vural H, Uzun M, Yokuşoğlu M. State and trait anxiety levels before coronary angiography. J Clin Nurs 2008; 17: 602-7. [CrossRef]

**Address for Correspondence/Yazışma Adresi:** Dr. Majid Najafi Kalyani Department of Nursing, Fasa University of Medical Sciences Ebn-E-Sina Sq, Fasa-*Iran*
Phone: +987312220994-6 E-mail: majidnajafi5@yahoo.com
**Available Online Date/Çevrimiçi Yayın Tarihi:** 16.11.2012


*doi:10.5152/akd.2013.026*

# Double outlet right ventricle: Fallot type or non-Fallot type

## *Çift çıkımlı sağ ventrikül: Fallot tip veya non-Fallot tip*

Dear Editor,

Double outlet right ventricle (DORV) is a ventriculoarterial connection with both great vessels arising, entirely or mainly, from the right ventricle (1). DORV morphology should be characterized by an exact description of the ventricular septal defect (VSD) in relationship to the semilunar valves, of the great arteries to each other, the presence of pulmonary outflow tract obstruction or aortic outflow tract obstruction, the tricuspid-pulmonary annular distance, finally the presence of other, associated cardiac pathology (2). Treatment approach and clinical follow-up depend on accurate anatomical description complete identification of associated anomalies. Various criteria have been used in the definition and classification of DORV. The relationship of VSD to the great arteries is the basis for the classification proposed by Lev et al. (3), one of the most widely used clinical classification schemes to date for DORV. The Association for European Pediatric Cardiology (AEPC) considers DORV in four different types: VSD-type, Fallot-type, transposition of great arteries (TGA)-type and non-committed (remote) VSD type (4). The protocol followed in our clinic considers DORV as either Fallot-type or "others", and applies a 50% rule. There are, however, some difficulties in applying this rule in transthoracic echocardiography (TTE) interpretation, especially for borderline cases. Considering the subjective character of such a rule in cases when there is no subaortic conus or TGA, the absence of mitral-aortic fibrous continuity is used as a second criterion. With TGA, absence of mitral-pulmonary continuity is required. Previous studies showed that establishing a mitral-aortic continuity for DORV diagnosis is uncertain; other criteria such as the relation between the posterior walls of the aorta and pulmonary artery were suggested for use in differential diagnosis against the tetralogy of Fallot (5). Although ascent from the right ventricle of more than 50% of aorta may be accepted as a sufficient condition for DORV, demonstration of a total defect is liable to modify pre-operative preparation. The diagnosis of DORV implies not only anatomical heterogeneity and difficulties with clinical classification, but also problems concerning surgical timing and the choice of appropriate technique. The characterization of malformations for a correct choice of diagnosis and treatment should include the position of VSD, the relations between the great arteries, and the presence or absence of pulmonary artery outlet obstruction, pulmonary hypertension and associated cardiac lesions. According to our observations, part of the patients incurs the risk of pulmonary hypertension as a consequence of pulmonary hyperperfusion, predominantly in non-Fallot type DORV. A correct characterization of these risks affects treatment and follow-up. While definition and classification of DORV currently remain controversial, a correct identification of the defects with TTE and the characterization of associated anomalies can help reduce morbidity and mortality by indicating the correct treatment methods.

**Ayhan Çevik**
**Department of Pediatric Cardiology, Faculty of Medicine, Gazi University, Ankara-*Turkey***

## References

1. Walters HL 3rd, Mavroudis C, Tchervenkov CI, Jacobs JP, Lacour-Gayet F, Jacobs ML. Congenital Heart Surgery Nomenclature and Database Project: double outlet right ventricle. Ann Thorac Surg 2000; 69: 249-63. [CrossRef]