



# EMIRATES CARDIAC SOCIETY

April 2009

Vol II

## Atherosclerosis in Women

Cardiovascular disease is the leading cause of death among women, exceeding breast cancer mortality in women of all ages. Women present with cardiovascular disease a decade after men and this has been attributed to the protective effect of female ovarian sex hormones particularly estrogen.

Although the number of cardiovascular death has declined in men, it has actually increased in women over the past decade, because our population is aging and the epidemics of obesity, metabolic syndrome and diabetes-all of which disproportionately affect women.

Women present more with atypical symptoms of coronary artery disease.

## ARAB HEALTH AWARD FOR EMERGENCY MEDICAL SERVICES



The Division of Adult Cardiology at SKMC recently received the 2009 Arab Health Award for Emergency Medical Services.

This was received by Dr. Wael Almahmeed, ECS President and Dr. Nazar Al Bustani, ECS Board Member at the recent award ceremony. They received it for 4 years of 24/7 primary angioplasty in the UAE. Of note is the door to ballroom time at SKMC is well below 90 min.

Sensitivity and specificity of stress testing to predict coronary artery disease are significantly lower in women.

Considerable experimental and clinical data indicate that sex has an important influence on cardiovascular physiology and pathology; women develop a more severe or somewhat different form of vascular disease than men.

Women with coronary artery disease have a lower prevalence of luminal obstruction compared to men, still ultimately have poorer outcomes. Considerable data link the microvasculature to ischemia among women without severe obstructive coronary lesions.

Structurally, women's coronary vessels are smaller in size and appear to contain more diffuse atherosclerosis, their aortas stiffer (fibrosis, remodeling, and so on) and their microvessels appear to be more frequently dysfunctional compared with men. Functionally, women's vessels frequently show impaired vasodilator responses.

Women presenting with acute coronary syndrome receive less medical therapy within 24 hours (aspirin, beta blockers and even reperfusion therapy in favor of thrombolysis), they have less chance to be referred for coronary angiography and coronary artery bypass surgery.

For a woman under 65 years of age, who has a myocardial infarction (MI), the mortality rate is approximately twice that for men, one year mortality is 1.5 times the rate for men.

Post coronary bypass surgery, mortality rates in women are approximately twice that observed in men.

For heart failure patients of all ages, the annual incidence rate for women is about twice that of men.

Solutions to the problem would be to increase awareness among women about their risk of heart diseases, second we need to teach –or re teach physicians to pay more attention to symptoms and test findings. We must understand that there is a "female pattern" of ischemia-related symptoms distinct from that seen in men and a "clean" angiogram in a symptomatic woman does not mean her long-term outcome is benign.

And more research is needed to look at issues like concealed plaque (e.g. remodeling) and inflammation in the vessel wall, the prognostic utility of blood markers, and the role of the microvasculature.



Dr. Awatef Al-Sousi

# The Appropriateness Criteria for Coronary Revascularization

A report of the ACCF/SCAI/STS/AATS/AHA/ASNC, was released in 2009 and was issued in the appropriateness review of common clinical scenarios in which coronary revascularization is considered. These scenarios are developed to mimic common situations encountered in everyday practice. A score of 1-9 was developed to measure the appropriateness.

A 7-9 considered appropriate, 1-3 Inappropriate and 4-6 considered uncertain (u). that The (u) means revascularization may be acceptable, may be reasonable, but with uncertainty that more research is needed

Because in many Instances the guidelines provide no recommendation, or have level c evidence and also because of the variability of clinical practice, so this report is developed to serve as a supplement to ACC/AHA Guidelines. This report contains more detailed scenarios than the more generalized situation covered in guidelines, therefore a subtle difference between the two is possible. They are intended to assist patients & clinicians & can't act as substitutes for sound clinical judgment & practice experience. These criteria were developed considering the following Variables:-

1. Clinical presentation
2. Severity of angina.
3. Extent of Ischemia on non Invasive testing.
4. Extent of coronary anatomy.
5. LV Function
6. Extent of medical Therapy
7. Extent of coronary anatomy

## The Summary of The Appropriate Criteria

Following are 10 points to remember about these appropriateness criteria for coronary revascularization:

1. In patients with ST-elevation myocardial infarction (STEMI), revascularization of the culprit vessel in patients presenting within 12 hours is considered appropriate.
2. In patients with STEMI who present between 12-24 hours of symptom onset, revascularization is appropriate in patients who have persistent symptoms, severe heart failure, or hemodynamic or electrical instability, whereas percutaneous coronary intervention (PCI) is considered inappropriate in the absence of these features.
3. In patients with STEMI who have undergone primary PCI or fibrinolytic therapy and have no symptoms, electrical or hemodynamic

# PROF. PHILIP A POOLE-WILSON

The news of the sudden death of Professor Philip Poole-Wilson has struck the cardiology world like a thunderbolt.

Professor Philip Poole-Wilson was a giant in cardiovascular diseases and particularly so in our understanding of the pathophysiology of cardiac failure and its pharmacological management. He was erudite, eloquent, and persuasive in presenting the management of this human ailment, and has helped to project cardiac failure as a significant and increasingly important clinical problem affecting the health and well-being of millions. In doing so, he had helped in mentoring a large body of specialists in this field including doctors, nurses, and other para medical staff. Indeed, he has been the past President of the European Cardiac Society and all its section of Heart Failure.



He was no stranger to Dubai having visited here on a number of occasions to share in the clinical management of patients, and to pursue his mission as an educator. In fact, he was on the Faculty for the Dubai Heart Failure 2007 meeting in Dubai.

I have been fortunate in knowing him personally, and I will miss his generous unselfish nature as well as his professional wisdom. He will be sorely missed in cardiology.

## Professor J M Muscat-Baron

Professor of Medicine, Consultant Physician & Cardiologist  
Clinical Dean, Clinical Faculty - Dubai Medical College, Dubai Health Authority

- instability, or provokable ischemia, revascularization of a nonculprit vessel in the same hospitalization is considered inappropriate. In patients with STEMI who have no symptoms after primary PCI or fibrinolysis, but have a depressed left ventricular ejection fraction (LVEF) and three-vessel coronary artery disease (CAD), elective or semi-elective revascularization is appropriate.
4. In patients who have undergone PCI of the culprit vessel for STEMI or non-STEMI and have symptoms of recurrent ischemia or high-risk findings on noninvasive testing performed after index hospitalization, revascularization of one or more vessels is considered appropriate.
5. Revascularization of more than one vessel is appropriate in patients with cardiogenic shock or in patients with non-STEMI when the culprit artery cannot be clearly identified
6. In asymptomatic patients, revascularization is considered inappropriate in patients with low-risk findings on noninvasive testing and one- or two-vessel disease.
7. In asymptomatic patients with three-vessel disease, revascularization is considered appropriate in patients with high- or intermediate-risk features on noninvasive testing or in the presence of abnormal LV

function, or in patients with left main artery disease.

8. In asymptomatic patients with proximal left anterior descending artery disease (and one- or two-vessel CAD), and presence of high-risk features on stress testing, revascularization is considered appropriate, while it is of uncertain value if the noninvasive findings are of intermediate or low risk
9. Revascularization is considered inappropriate in patients with class III or IV angina in the presence of borderline stenosis (50-60%) in the absence of high-risk noninvasive features or in the absence of further invasive evaluation (fractional flow reserve or intravascular ultrasound).
10. In asymptomatic patients with chronic total occlusions (CTOs), revascularization is either inappropriate (low-risk features on noninvasive testing) or of uncertain value. Revascularization is considered appropriate in patients with a CTO who have high-risk features and have class III or IV angina on maximal therapy.

Reference: JACC online, Jan 5, 2009



Dr Yahya Kiwan



I would like to welcome you all to read the second publication of our Emirates Cardiac Society Newsletter. Our vision is to support continuous medical education on cardiovascular disease and to promote awareness on the burden of cardiovascular disease to the public. The Emirates Cardiac Society plays a major role in bringing doctors together to discuss and exchange their experiences in cardiology. I congratulate you who have chosen to get involved in our society, and I urge others who haven't, to join in. Our success depends on your contribution, and this hopefully will lead to better patients care.

Dr. Wael Almahmeed  
President

# NONPHARMACOLOGIC TREATMENT OPTION FOR REFRACTORY ANGINA PECTORIS / HEART FAILURE

Enhanced External Counterpulsation Therapy.( E.E.C.P.)

Enhanced External Counterpulsation is a non-invasive outpatient therapy.

It uses cuffs around the legs that fill with air.

The cuffs squeeze the legs in rhythm with the patient's own heart beat hence reduces the heart workload and relieves angina. The haemodynamic effects resemble IABP however unlike IABP it also increases the venous return.

This therapy is underway in Zayed Military Hospital and will be offered to symptomatic angina patients who are not amenable to any form of revascularization or did not benefit from such therapy. Heart failure patients will derive benefits and are included in this privilege.

Invented in Boston in the late 1960s, EECP was effective in treating cardiogenic shock, or severe heart failure.

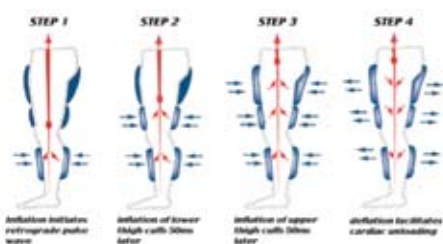
The technique however was cumbersome, and fell out of favor while bypass surgery came into use.

Researchers in mainland China during the 1980s improved the technology and effectively treated patients with heart disease and stroke.

Cuffs resembling oversized blood pressure cuffs—on the calves and lower and upper thighs, including the buttocks—

inflate rapidly and sequentially via computer interpreted

ECG signals, starting from the calves and proceeding upward to the buttocks (Fig. 1).



The counterpulsating action of EECP therapy increases venous return and cardiac output.

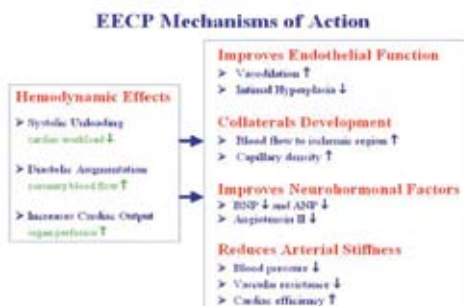
During EECP therapy systolic unloading is improved by increasing blood flow and oxygen to the heart, while diastolic augmentation increases the energy supply to the heart.

The hemodynamic effects of EECP also increase the pressure gradient as well as the release of vascular growth factors that enhance coronary collateral circulation.

The increase of blood flow increases shear stress on the walls of the arteries and improves endothelial function.

Careful patient selection, thorough patient evaluation before, during and after each treatment, vigilant patient monitoring, a properly equipped facility, and appropriate medical supervision will serve to optimize the safety and

effectiveness of EECP therapy and minimize the possibility of adverse events.



## EECP and Angina

Effects include reduction of angina and nitrate use, increased exercise tolerance, favorable psychosocial effects and enhanced quality of life, as well as prolongation of the time to exercise-induced ST-segment depression and an accompanying resolution of myocardial perfusion defects

After a series of treatments, usually 35, 1-hour in length, collateral blood vessels develop around the heart, creating a natural bypass around the occluded vessels.

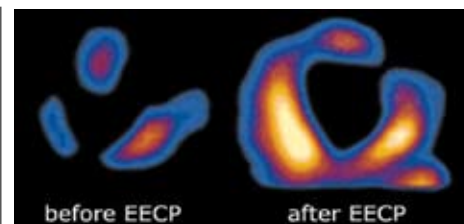
The response rate for patients suffering from angina is around 80%, with none of the risks of open-heart surgery or angioplasty.

The suggested mechanisms contributing to the clinical benefit of EECP therapy include:-

- Improvement in endothelial function,
- Promotion of collateralization,
- Enhancement of ventricular function,
- and peripheral effects similar to those observed in response to regular physical exercise.
- Clinical studies and data from the International EECP Patient Registry (IEPR), coordinated by the Epidemiology Data Center at the University of Pittsburgh, continue to demonstrate that 70-80% of patients realize therapeutic benefit immediately upon completion of a course of EECP therapy. At patient follow-up, therapeutic benefit is enhanced at six months and sustained at 36 months post treatment. QOL measures from a randomized trial and registry studies show significant improvement in the patients' ability to resume activities of daily living, social interaction, and recreational pursuits.

It is postulated that the repeated and pulsed increases in diastolic pressure during therapy with EECP may enhance or stimulate the opening of collateral channels in the coronary vascular system, increasing perfusion of ischemic areas.

In studies to date, therapy with EECP has been well tolerated by all patients enrolled. No patient withdrew after enrollment, and there have been no reported complications



## Contraindications

1. Arrhythmias that interfere with machine triggering
2. Bleeding diathesis
3. Active thrombophlebitis
4. Severe lower extremity vaso-occlusive disease
5. Presence of a documented aortic aneurysm requiring surgical repair
6. Pregnancy

## EECP IN HEART FAILURE

The PEECH trial (Prospective Evaluation of EECP in Congestive Heart Failure) randomized 187 patients with heart failure, who remained symptomatic despite optimal medical therapy, to either receive a standard 7-week course of EECP or to remain on medication alone

Patients showed a significant improvement in exercise duration after EECP, but not in oxygen consumption (though there was a non-significant trend toward improvement in this measure).

Further, patients reported significant improvements in their QOL following EECP, and their average function

EECP therapy was associated with significant improvements in exercise capacity as measured by peak oxygen uptake and exercise duration and in quality of life at 1 week and 6 months after EECP treatment..

Data analysis found that within five years of initial treatment, patients treated with coronary bypass, angioplasty, or EECP all experienced similar subsequent mortality and heart attack rates, although the rate of deaths within five years was slightly lower for both EECP and bypass surgery than for angioplasty

On going studies for the role of this therapy are being evaluated in prevention of cardiovascular disease making it an attractive therapy as it can offer most of exercise benefits.



**Dr. Mohamed Elbur**, F.R.C.P.,d.C.M., D.T.C.D., Consultant Cardiologist, Zayed Military Hospital, Abu Dhabi. Head of Diagnostic Cardiology Division



## Sharing Matters of the Heart

I would like to thank all of my colleagues in UAE who helped me to produce this newsletter of Emirates Cardiac Society. Without your contribution, I could not achieve this goal and I hope that we continue to work together to exchange our experience in order to try to reduce the burden on cardiovascular disease in UAE.

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The newsletter is available on line at

<http://www.emiratescardiac.com/>

## Thanks

Emirates cardiac society would like to extend its thank and appreciation to **Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Science** who has graciously offered to sponsor this newsletter.



Sheikh Hamdan Bin Rashid Al Maktoum  
Award for Medical Sciences

## DO WE HAVE TO CLOSE ALL PFO ??

39 y old indian male patient

Was admitted with Lt side body weakness

On examination hes pulse was 68b/min, BP 108/68.

CNS exam showed facial palsy with reduced power in Lt UL 2/5 and in LL 4/5

Brain CT scan showed RT occipital and suboccipital infarction

- TTE normal study
- TEE showed small PFO measures 0.3cm with lt to rt shunt
- No rt to lt shunt was detected by injecting agitated saline

Genetic disorders are abundant in the Arab World; a factor contributed to by the widespread norm of consanguinity in the region, selective and environmental factors favoring the persistence of certain genetic traits, and the lack of public awareness towards the early recognition and prevention of inherited disease. Several disease conditions, such as hemoglobin disorders, hypertension, diabetes mellitus, and Down Syndrome, pose a significant health care and psychosocial burden for the patient, his family, and the healthcare system. The pioneering vision of H.H. Sheikh Hamdan Bin Rashid Al Maktoum, Deputy Ruler of Dubai and UAE Minister of Finance and Industry, to alleviate human suffering from genetic diseases in the Arab World crystallized in the establishment of the Centre for Arab Genomic Studies (CAGS) on 25 June, 2003. Since then, the Centre has dedicated itself to the mission of improving human health by characterizing and preventing genetic disorders in Arab countries based on the recent advances in human genetics.

The Catalogue for Transmission Genetics in Arabs (CTGA) Database is an enormous project undertaken by the Centre, which aims to create a compendium of information related to the entire range of genetic disorders reported among Arabs. As of now, the database has information on about 1241 genetic disorders and related genes reported in Arab subjects, which is available in a freely accessible form at the CAGS website. CAGS strategy with regard to the CTGA database is to cover the spectrum of genetic diseases in each of the Arab countries one after the other, ultimately covering the entire Arab World.

Using a comprehensive search strategy in international and national peer-reviewed medical journals, the CTGA Database has brought together information on the presence of more than 400 genetic disorders in the Arab population of the UAE, Bahrain and Oman. Interestingly, although a small fraction of these disorders are common in the three populations, a large number of genetic disorders are country-specific, reflecting a remarkable genetic heterogeneity in

these populations, both at the clinical as well as at the molecular level.

As an example, the CTGA database records the presence of 34 disorders of the circulatory system, which is less than 4% of the total diseases recorded in the database. The most common of these include Essential Hypertension, Ischemic Stroke, Atrial Septal Defect, Takayasu Arteritis, and Wolff Parkinson White Syndrome. Certain rare

disorders, such as Jervell and Lange-Nielsen Syndrome, Ebstein Anomaly, and Moyamoya Disease are also seen in these populations. Of all the countries studied so far, hereditary cardiac disorders have been reported most from Oman, probably pointing to the availability of specialists in this field there. The UAE fares a close second, while Bahrain has very few reports of cardiac and circulatory disorders.

Apart from the CTGA Database, CAGS also contributes to the community by way of organizing international genetic conferences, publishing books, leaflets and scientific articles, aimed at professionals and laypeople, as well as conducting research studies on the basis of genetic disorders present among Arab populations.

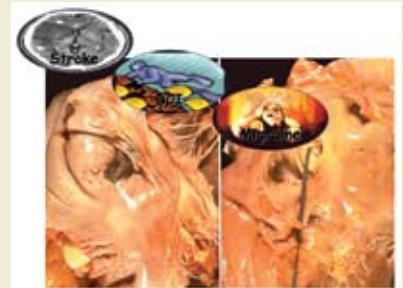
## CENTRE FOR ARAB GENOMIC STUDIES



Prof. Najib Al Khaja

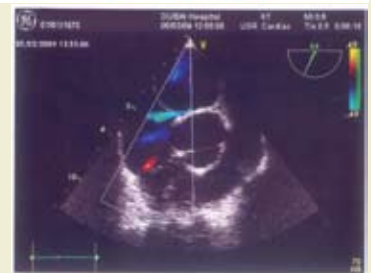
### Patent Foramen Ovale (PFO)

Failure of anatomic fusion of the valve of the foramen ovale with the limbus of the fossa ovalis that normally occurs when left atrial pressure exceeds right atrial pressure after birth. There is no structural deficiency of tissue of the atrial. The foramen is functionally closed as long as left atrial pressure rises. PFO is found in up to 35% of the adult population in pathological studies. The lower and variable prevalence reported in clinical series depends on the techniques used to find it. Also called probe-patent foramen ovale.



### Indications for closure of PFO

- Recurrent cryptogenic stroke
- First cryptogenic stroke with septal aneurysm
- large rt to lt shunt
- large PFO > 10mm
- recurrent DVT/PE
- contraindication for anticoagulation
- divers
- Refractory debilitating migrain??
- Borderline
- First stroke
- TIA
- Small PFO



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