On the other hand, in many other studies female gender has been reported as a significant independent predictor of mortality after CABG. Older age at the time of operations, higher incidence of unstable angina, diabetes mellitus and systemic hypertension, smaller body surface area, smaller size of coronary arteries and higher rate of incomplete revascularization have been noted in females compared with males undergoing CABG. In most of these studies, no detailed explanations for left main coronary arterial diseases (LMCA) have been particularly expressed (3). Furthermore, in their first study Jönsson et al. (4) reported the critical LMCA disease to be effective for early and late mortality in both sexes. In this study, however, patients with critical LMCA were older patients, had peripheral vascular diseases, had unstable angina pectoris and dyslipidemia. Higher mortality in these patients would not be a great surprise (4). In a more comprehensive study, the same author concluded that during the 30-year period, 1970-1999, there was a decrease of early and five-year mortality in both sexes with LMCA stenosis after CABG despite increases of patient age and risk factors. An increased risk of early and late deaths after CABG in patients with LMCA stenosis compared with patients without LMCA stenosis in the 1970s and 1980s was neutralized during the 1990s. This most likely reflects improvement of the peri and postoperative management of patients undergoing CABG during this time period (5). Moreover, in a report from the Cleveland Clinics in 1982, left main disease was neutralized as an independent risk factor for operative mortality after CABG (6).

As a conclusion risk of mortality is higher mostly due to the aforementioned characteristics in the female sex either with or without critical LMCA disease. As 5-20% of all patients undergoing CABG have LMCA disease, female sex acts as a determinant factor in mortality but independent of LMCA disease.

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Author's reply

Dear Editor,

We appreciate and welcome the reviewers' comments and contribution to our data which is published in the June 2007 issue of the JOURNAL.(1) As it is stated, older age at the time of operations, higher incidence of unstable angina, diabetes mellitus and systemic hypertension, smaller body surface area, smaller size of coronary arteries and higher rate of incomplete revascularization have been noted in females. Each of these characteristics may contribute to a higher rate of mortality in the female population. In our data, most of these characteristics are equally distributed among both sexes except hypertension being more prevalent in women and smoking being more prevalent in men. This may be a finding reflecting the role of female sex in mortality, independent of other factors in a population of significant left main stenosis patients. In the data published by Jönsson et al. (2), it is reported that the critical left main coronary artery disease (LMCA) to be effective for early and late mortality in both sexes. This study was comparing patients with and without critical left main stenosis. In this study, patients with critical LMCA were older patients, had peripheral vascular diseases, unstable angina pectoris and dyslipidemia. Our study was, in fact, comparing women and men in a population consist of only critical left main stenosis patients. As a conclusion, our focus was on a very specific patient population from the point of view of female sex as a risk factor for higher mortality. Our results are consistent with prior reports reflecting female sex as a risk factor for mortality in coronary artery bypass operation. We propose that this increased risk for women remains also in critical left main stenosis just as it is in the general female population undergoing coronary artery bypass operation.

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High blood glucose concerns heart specialist very…/ Coronary atherosclerosis distribution and the effect of blood glucose level on operative mortality/morbidity in diabetic patients undergoing coronary artery bypass grafting surgery: a single center experience

Yüksek kan şekeri kalp uzmanını çok ilgilendiriyor…/ Koroner baypas operasyonu yapılan hastalarda kan şekeri düzeyinin ameliyat mortalite/morbidite üzerine etkisi ve diyabetik hastaların koroner ateroskleroz dağılımı; Tek merkezin deneyimi

In developing countries, the prevalence of chronic diseases is increasing, and projected to increase substantially. Among them, cardiovascular disease, cancer, chronic lung disease, and diabetes are the main causes of death in the world. The increased burden of

chronic diseases is straining our health services, leading to growing economic coasts, and necessitating intensive multidisciplinary intervention especially in frequently "shared" medical conditions such as diabetes mellitus (DM) and heart disease (1, 2).

Since the independent contribution of DM to cardiovascular disease was established within the epidemiological data of the Framingham Study, large amount of research detailed the relation between even earlier stages of impaired glucose metabolism and both the genesis and extent of coronary atherosclerosis. To our current knowledge, DM is something more than a risk factor, almost a "starter" of heart disease, and is associated with a severe disease, high complication rates, relatively less successful therapeutic interventions with high morbidity and mortality (1, 3).

Consistent with the study cohort in the article published by Tütün et al (4) in June issue of the Anatolian Journal of Cardiology, the incidence of diabetes mellitus in patients undergoing coronary artery bypass grafting ranges from 12% to 38% (3, 4). On the contrary to somewhat "optimistic" results of the study about early outcome, both overt and previously undiagnosed diabetic patients were reported to display substantially higher peri- and post-operative morbidity and mortality (5). Considering that those patient groups showed significant differences by means of one-vessel disease (almost half between Group 1 and 4), emergency of revascularization, balloon pump use, mechanical complication rate, need for inotropic support after the operation, interpreting the comparable mortality becomes more difficult even for any of above-mentioned variable. Despite the statistical computation showed "no significant difference" in this satisfactorily large sample size, I suggest, the 63% higher mortality in Group 4 compared to Group 1 should not be ignored.

However, comparison of morbidity indexes, mediastinitis in particular (1/6 and 1/4 of Group 1 in Groups 2 and 4, respectively), provided surprising, questionable results that are clearly different from other studies published in the literature, and that are far from being explainable with a statistical "reaching a significance" problem. Furthermore, the present data - despite providing a large database - surprisingly contradicts with our knowledge that diabetics are more obese, hypertensive, and have higher triglyceride levels. Male predominance could not explain significantly increased number of hypertensive's in Group 1, since the diabetic population is of increased prevalence of hypertension in the setting of female predominance.

Even the earliest stage of DM is of paramount clinical importance for patients with coronary artery disease, especially for those undergoing mechanical revascularization, and those who are followed in intensive care units. Previous studies demonstrated that among approximately half of the diabetics, the disease is diagnosed incidentally (5). This insidious nature and clinical consequences of disease mandate multimodal, interdisciplinary approach to our patients with heart disease (2). Therefore, our heart centers should not provide a "strictly separated" medical care model; overcoming current barriers and multidisciplinary cooperation with common guidelines are highly necessary.

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Author's reply

Dear Editor,

We would like to thank the author of the letter for comments and interest in our article.

Atherosclerosis is responsible for 80% of deaths in diabetic patients and two-thirds of these are related with coronary artery disease (CAD) and one-third is related with cerebral or peripheral artery diseases (1). On the other hand, diabetic patients have been shown to be at a higher risk of complications with a higher long-term mortality rate after coronary artery bypass grafting (CABG) as compared with non-diabetic patients (2). Besides, the incidence of all manifestations of CAD (myocardial infarction, angina pectoris and sudden death) is greatly increased in diabetic patients. The mortality rate following the surgery in diabetic patients increases about 50-90% because of the accelerated atherosclerosis, and hyperglycemia increases the tendency to infection, depresses wound healing process by effecting the polymorphonuclear leucocytes, fibroblasts, platelet activity, coagulation-fibrinolysis equation, lipid metabolism and endothelial activity (3, 4).

The higher mortality among diabetics after revascularization is also thought to be consistent with the anatomic aspect of the disease (diffuse distal CAD, small vessels, diffuse calcifications). In our study, the coronary artery lesion distribution also reveals distal and diffuse pathology; the distal segment of left anterior descending artery, mid-segments of circumflex and right coronary artery are affected. Additionally, multi-vessel coronary artery disease was found to be more prevalent in groups of high blood glucose level and the coronary artery endarterectomy was 2.5 times higher in the highest blood glucose level group (5).

In our study, hospital mortality was found to gradually increase from the Group 1 to 4 and reached to 11.3 % in Group 4. The difference between the groups was not statistically significant (p=0.09). We divided the patients into four groups in order to better show how each blood glucose level affects the patients. Although we have enough number of patients included in the study, four groups sometimes make it difficult to reach a statistically significant level. Not only emergent operations with acute ischemia were also significantly higher, but also, the mechanical complications of myocardial infarction were also encountered mostly in the groups with high blood glucose levels.

We could not found a statistical significance in terms of the lipid parameters, the rate of obesity, family history of CAD, the incidence of smoking, the type of angina pectoris among the groups, but found significant increase in the incidence of female gender and multi-vessel disease; the duration of the operation, cardiopulmonary bypass and cross-clamp were longer in high blood glucose groups. We aimed to investigate the effect of blood glucose levels on atherosclerotic lesion distribution and the contribution to the operative mortality/morbidity in diabetic patients who underwent CABG in our study. We did not compare the diabetics and non-diabetics. All the patients were diabetic in our study and we classified them according to blood glucose levels that were obtained when they first applied to hospital. This is the reason why we could not found some parameters significantly different between the groups as compared in the literature like diabetics and

non-diabetics. Approximately 40% of the patients in Groups 2-4 were found to have undiagnosed diabetes mellitus. Most of them had uncontrolled blood glucose levels. They were treated before the operation. The important point is, although they were treated successfully, their mortality and morbidity increased gradually according to their initial blood glucose levels. It is well known that diabetes mellitus directly affects the patients. In this study, we tried to emphasize that high blood glucose level were found to affect the patients undergoing CABG by increasing preoperative intraaortic balloon pump requirement, emergent operation rate and the incidence of mechanical complications of CAD; by prolonging the duration of cardiopulmonary bypass and aortic cross-clamp, increasing the requirement for inotropic support.

These necessitate strict control of blood glucose levels in diabetic patients, which requires a multidisciplinary approach. Patients who have uncontrolled blood glucose levels or did not have clinical diagnosis of diabetes mellitus although they have high blood glucose levels should further be investigated.

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Hipertrofik kardiyomiyopatili olgularda uygunsuz periferik vasküler yanıta bağlı gelişen senkop

Syncopal episodes due to inappropriate peripheral vascular response in patients with hypertrophic cardiomyopathy

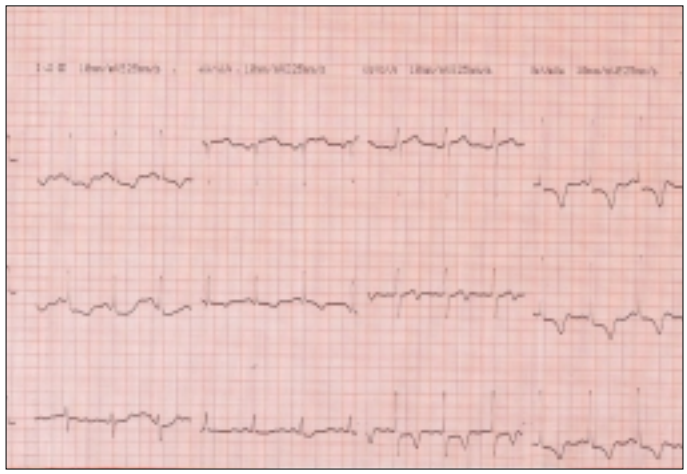
Sayın Editör,

Hipertrofik kardiyomiyopati (HKM) belirgin değişkenlik gösteren klinik bulgular, morfolojik ve hemodinamik anormallikler ile kendini gösteren sol ventrikül hipertrofisi ile karakterize kalp kası hastalığıdır. Çeşitli çalışmalarda prevalansı %0.16 ile %0.29 arasında bildirilmektedir. Hipertrofik kardiyomiyopatili olgularda dispne (%90), göğüs ağrısı (%25-30), çarpıntı, presenkop (%20), senkop (%15-25) ve ani kardiyak ölüm sıklıkla bildirilen semptomları oluşturmaktadır (1). Her ne kadar HKM'de görülen senkobun egzersiz sırasında uygunsuz kardiyak debi ya da ciddi ventriküler aritmilere bağlı oluştuğu bilinse de HKM olgularının yaklaşık üçte-birinde egzersiz sırasında uygunsuz periferik vasküler kan basıncı yanıtına bağlı olarak da gelişebileceği bildirilmektedir (2-4).

Elli bir yaşında kadın olgu, eforla ortaya çıkan nefes darlığı, göğüs ağrısı ve son 1 yıl içinde ortaya çıkan 15'den fazla senkop atağı ile kliniğimize başvurdu. Senkop öncesi ve sonrasında çarpıntı ve göğüs ağrısı tanımlamıyordu. Koroner arter hastalığı açısından hipertansiyon, hiperlipidemi, obezite pozitifti. İzosorbid mononitrat, trimetadizin, atorvastatin, furosemid tedavisi almaktaydı. Fizik incelemede; kan basıncı: 112/74 mmHg, nabız:85/dk, kalp atışları ritmik, mitral dinleme alanında ve sol sternal kenardan başlayıp aort dinleme alanına doğru şiddeti azalarak yayılan 3/6' derecede sistolik üfürüm, 2. kalp sesinde çiftleşme saptandı.

Elektrokardiyografisi sinüs ritmi, sol atriyal büyüme ve hipertrofik kardiyomiyopati ile uyumlu bulguları içeriyordu (Resim 1). Hematolojik, biyokimyasal ve karaciğer enzimlerinde anormal değer saptanmadı. Teleradyografisinde kardiyotorasik oran normal sınırlardaydı. Ekokardiyografisinde; sol ventrikül ejeksiyon fraksiyonu %66, septum en kalın bölümünde 25.5 mm, arka duvar 14 mm, diyastolik iç çap 45 mm, sistolik iç çap 29 mm, sol ventrikül çıkış yolu gradiyenti istirahatte 25 mmHg, A/E oranında artış, hafif mitral yetmezliği saptandı (Resim 2). Sol ventrikül çıkış yolu gradiyenti efor yaptırıldıktan sonra 30 mmHg olarak bulundu. Olgu efor sonrası eko laboratuvarında senkop atağı geçirdi. Senkop atağı sırasında monitörden aritmi saptanmadı, göğüs ağrısı tanımlamadı. Göğüs ağrısına yönelik yapılan koroner anjiyografide sol ön inen arter ortasında sistolde %90-99 darlığa neden olup diyastolde tamamen normal kalibrasyona dönen miyokardiyal bridge saptandı. Ventrikülografide duvar hareketleri ve ejeksiyon fraksiyonu normal, ancak sistol sırasında özellikle apikal ve mid ventriküler bölgelerin tamamen kollabe olduğu gözlendi (Resim 3). Sağ-sol kateterizasyonda sol ventrikül kavite basıncının 173/40 mmHg, sol ventrikül çıkış yolu basıncının 145/40 mmHg, aorta basıncının 145/93/75 mmHg, pulmoner kapiller kama basıncının 40/26/15 mmHg, pulmoner arter basıncının 65/38/22 mmHg, sağ ventrikül basıncının 66/10 mmHg, sağ atriyum basıncının 12/6/0 mmHg olduğu saptandı. Yirmi dört saatlik holter kaydında, 2 adet ventriküler erken vuru, 1 adet "couplet", nadir supraventriküler erken vurular gözlendi. Ayrıca hastanın birinci derece yakınlarında, ekokardiyografik taramada HKM ile uyumlu görünüm saptanamadı ve ani ölüm öyküsü mevcut değildi.

Senkobuna yönelik olarak, egzersiz ile kan basıncı yanıtı ve aritmi ilişkisini değerlendirmek üzere submaksimal efor testi yapıldı. Kan basıncının dakikada bir ölçüldüğü efor testinin 4 dakika 49 saniyesinde hastada baş dönmesini takiben senkop gelişti. Bu sırada monitörde aritmi gözlenmedi, efor başlangıcında 120/70 mmHg olan sistolik kan basıncı senkoptan 1 dakika önce 140/80 mmHg ölçüldü. Egzersiz sırasındaki sistolik kan basıncı değerinin yetersiz artışı, uygunsuz periferik vasküler vazodilatasyona bağlı uygunsuz periferik vasküler yanıt olarak değerlendirildi.



Resim 1. Hipertrofik kardiyomiyopatili olgunun elektrokardiyografisi