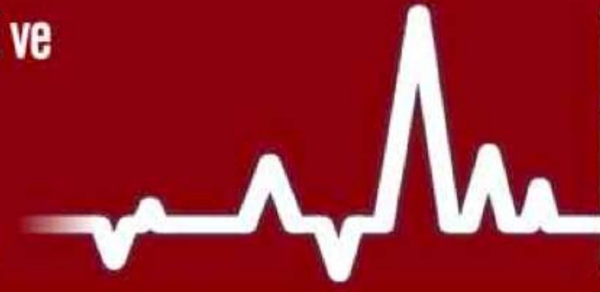
Göğüs Kalp Damar Anestezi ve Yoğun Bakım Derneği
19 Ulusal Kongresi
16 - 19 Mayıs, 2013
Karadeniz Teknik Üniversitesi / Trabzon



# Kardiyak Problemler ve Karaciğer Nakli

Dr. Hüseyin İlksen TOPRAK

Karaciğer Nakli Enstitüsü

# Problem

- New York Eyaletinde 1998’den 2006’ya bilinen KC hastalığına sahip ve Kalp Cerrahisi geçiren hastaların sayısında %22 artış saptanmış.



*Diaz, J Cardiothorac Vasc Anesth, 2012*

# Neden ?

- Medikal Tedavide Ciddi İlerlemeler
  - Beta Blokerler
  - Endoskopik Özefagial Varis Tedavileri
  - Akılcı Proflaktik Antibiyotik Kullanımı
  - Antiviral Ajanlar

# Sonuç

- İzole Organ Hastalığı arttığı gibi Kombine Organ Hastalığı da artıyor

# Siroz

- Cerrahi açısından bir çok risk faktörü içerir
- Şiddeti ile postoperatif sonuçlar paralel
- Üstelik kardiyak cerrahide risk daha fazla

# Siroz

**Renal**

Hepatorenal sendrom

Renin-angiotensin-aldosterone aktivasyonu

**Nörojenik**

Intrakraniyal hipertansiyon

Serebral ödem

Ensefalopati

**Metabolik**

Hiponatremi

Hipokalsemi

Hipoalbuminemi

Glukoz metabolizmasında bz

Asit-baz bz.

**Pulmoner**

Hepatopulmoner S.

V/Q uyumsuzluğu

Portopulmoner Hipertansiyon

Hipoksik pulmoner vk. Bz.

# SORU

- Önce nakil, sonra bypass

# SORU

- Önce bypass, sonra nakil

# SORU

- Aynı seansta iki ameliyat

# SORU

Önce nakil, sonra bypass

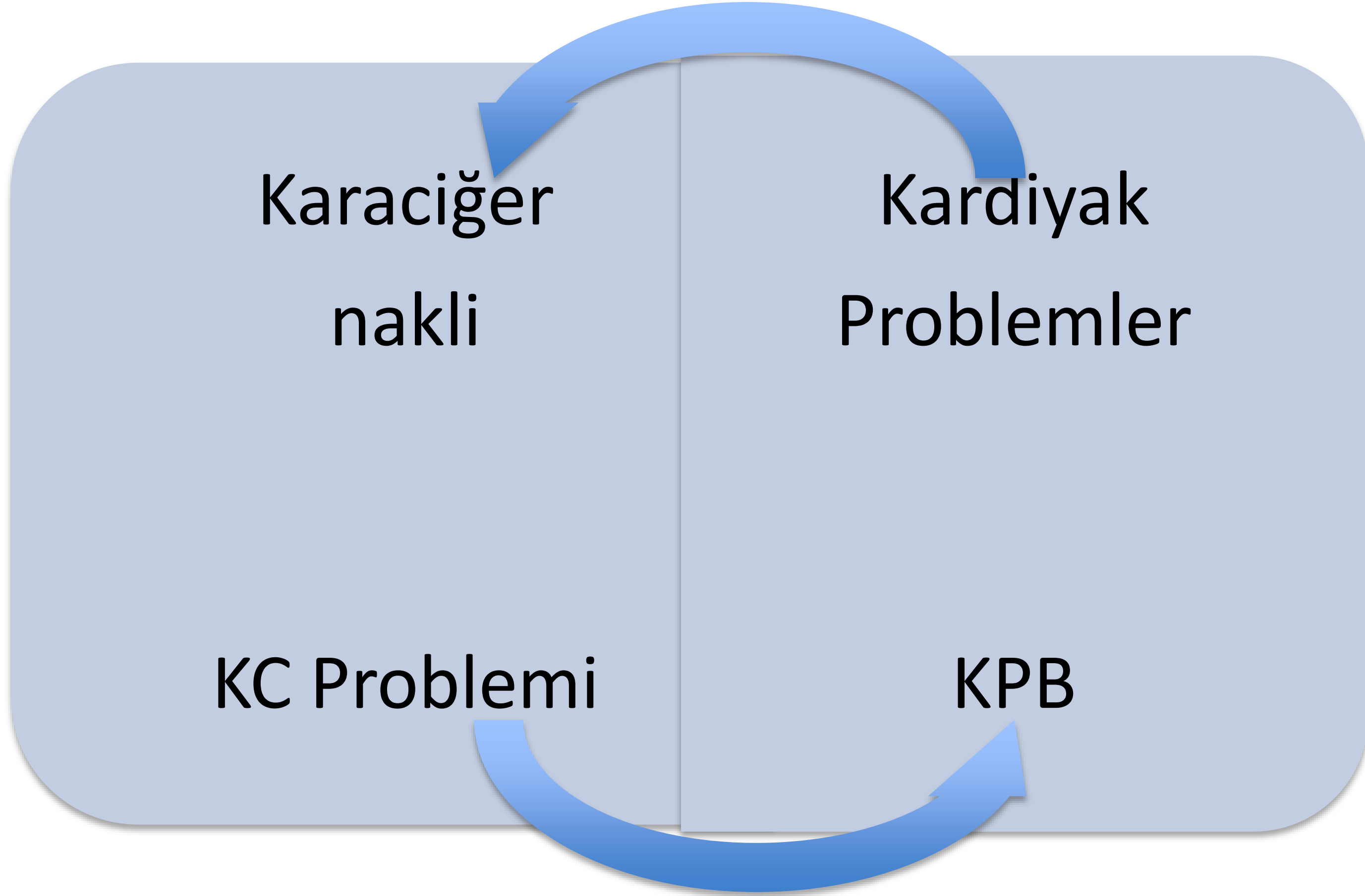
Önce bypass, sonra nakil

Aynı seansta iki ameliyat

# CEVAP

- ???

# Problem



# Problem

# Soru

- KC hastalığı KPB için bir risk faktörü müdür?

# NYHA

| | |
|---|---|
| **Sınıf I** | Günlük olağan fiziksel aktivitelerinde kısıtlanma yok |
| **Sınıf II** | Fiziksel aktivitelerinde hafif kısıtlanma |
| **Sınıf III** | Fiziksel aktivitede belirgin kısıtlanma olması |
| **Sınıf IV** | İstirahatte bile nefes darlığı olması |

# EuroSCORE

**Scoring systems for ICU and surgical patients:**

EuroSCORE (European System for Cardiac Operative Risk Evaluation)

| Variables (help) | Values | Beta (Logistic *Euro*SCORE) | Points (*Euro*SCORE) |
|---|---|---|---|
| Age (years) | 0 Enter | | 0 |
| Female gender | | 0 | 0 |
| Emergency | | 0 | 0 |
| Serum creatinine > 200 µmol/ L | | 0 | 0 |
| L.V.E.F. | | 0 | 0 |
| C.O.P.D. | | 0 | 0 |
| Surgery on thoracic aorta | | 0 | 0 |
| Extracardiac arteriopathy | | 0 | 0 |
| Neurological dysfunction | | 0 | 0 |
| Active endocarditis | | 0 | 0 |
| Critical preoperative state | | 0 | 0 |
| Unstable angina | | 0 | 0 |
| Recent myocardial infarction (< 90 days) | | 0 | 0 |
| Systolic PAP > 60 mmHg | | 0 | 0 |
| Previous cardiac surgery | | 0 | 0 |
| Postinfarct. septal rupture | | 0 | 0 |
| Other than isolated C.A.B.G. | | 0 | 0 |
| Clear | | Logistic *Euro*SCORE: 0 Logit = -4.789594 + Sum (beta) + 0.0666354 *Xi (Xi = 1 if patient age < 60; Xi increase by one point per year thereafter). Predicted death Rate = $e^{(Logit)} / (1 + e^{(Logit)})$ | *Euro*SCORE: 0 (points) *Euro*SCORE= |

# SORU

- KC hastalığı KPB için bir risk faktörü müdür?

**C T P**

| | A | B | C |
|---|---|---|---|
| Morbidite | 25 | 75 | 100 |
| Mortalite | 10 | 30 | 100 |

**M E L D**

**Sınır : 13,5**

# CTP

## Filsoufi, 2007

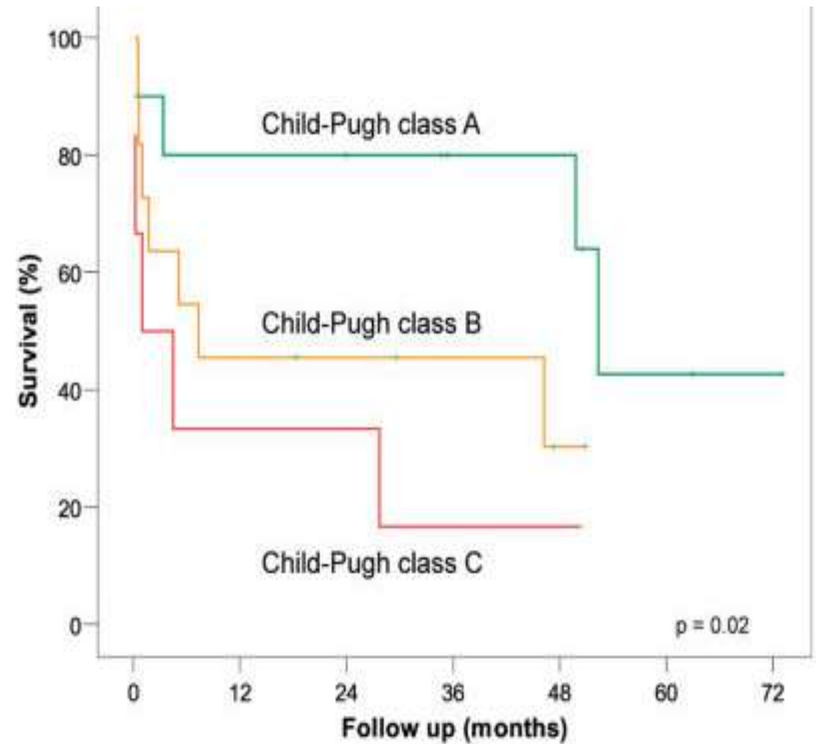
- Retrospektif
- 1998-2004 arası
- Toplam 27 hasta

<u>1 Yıllık Survival</u>

A: % 80

B: % 45

C: % 16






*Filsoufi, Liver Transpl, 2007*

# MELD

- Retrospektif
- 1998-2008 arası
- Toplam 57 hasta
- Hastane Mortalitesi ile İlişkili Değer
  - MELD: 13,5
- Mortalite
  - >13,5 ise %56
  - <13,5 ise %9

European Journal of Cardio-thoracic Surgery 38 (2010) 592–599

EUROPEAN JOURNAL OF CARDIO-THORACIC SURGERY

www.elsevier.com/locate/ejcts

## Risk prediction and outcomes in patients with liver cirrhosis undergoing open-heart surgery☆

Matthias Thielmann [a,*], Achmet Mechmet [a], Markus Neuhäuser [b,c], Daniel Wendt [a], Paschalis Tossios [a], Ali Canbay [d], Parwis Massoudy [a], Heinz Jakob [a]

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[b] Department of Mathematics and Technology, Koblenz University of Applied Science, Remagen, Germany
[c] Institute for Medical Informatics, Biometry, and Epidemiology, University Hospital Essen, Essen, Germany
[d] Department of Gastroenterology and Hepatology, University Hospital of Essen, Essen, Germany

Received 18 October 2009; received in revised form 15 February 2010; accepted 16 February 2010; Available online 21 April 2010

**Abstract**

**Objective:** There are few data assessing factors, which identify patients with liver cirrhosis (LC) facing high risk for open-heart surgery. We sought to compare the Model for End-Stage Liver Disease (MELD) score, the Child–Turcotte–Pugh (CTP) classification and the European system for cardiac operative risk evaluation (EuroSCORE) for risk prediction in cirrhotic patients. Methods: Fifty-seven consecutive patients with non-cardiac LC, who underwent open-heart surgery with the use of cardiopulmonary bypass between 1998 and 2008, were studied at our institution.



*Thielmann, Eur J Cardiothorac Surg, 2010*

# KC Problemli Hastada Açık Kalp C.

Artmış Morbidite ve Mortalite

En sık GIS komplikasyonlar

Kolestaz

Kanama

Mezenter İskemi

Toprak, 19. GKDA ve YB Kongresi 2013 Trabzon

# Postoperatif Dönem

**Ankonjuge Hiperbilirubinemi**

- Erken dönemde ve sıktır
- Hemolize sekonder
- Hepatik hasarı yansıtmaz
- 72 saatte düzelir



*Diaz, J Cardiothorac Vasc Anesth, 2012*

Interactive CardioVascular and Thoracic Surgery 11 (2010) 630-634

www.icvts.org

Best evidence topic - Cardiac general

# Do patients with liver cirrhosis undergoing cardiac surgery have acceptable outcomes?☆

Summar

Amit Modi, Hunaid A. Vohra, Clifford W. Barlow*

*Wessex Cardiothoracic Centre, Southampton University Hospitals NHS Trust, Tremona Road, Southampton SO16 6YD, UK*

A best ... s

with liver cirrhosis have acceptable outcomes after undergoing cardiac surgery. Altogether 97 papers were found using the reported search, of which nine presented the best evidence to answer the clinical question. The author, year, journal, country of study, study type, patient group studied, relevant outcomes, results and study weaknesses were tabulated. One prospective and another eight retrospective studies involving adult population of patients with liver cirrhosis undergoing various cardiac surgical procedures were selected. In these studies, the overall mortality was 17.1% and combined mean mortality for Child–Pugh class A, B and C was 5.2%, 35.4% and 70%, respectively. The major morbidity ranged from 20 to 60% in group A and 50 to 100% in the patients with more advanced hepatic disease. Some studies have demonstrated that thrombocytopenia, decreased serum cholinesterase and high preoperative total bilirubin levels are significantly associated with worse clinical outcomes. These studies, although with small samples, collectively demonstrate that patients with Child–Pugh class A cirrhosis tolerated cardiac surgical procedures with a mild increase in mortality and morbidity. However, the risk of mortality in patients with Child–Pugh class B and C or MELD score >13 is extremely high. Nevertheless, even if these patients underwent successful surgery, their long-term survival was significantly poorer and their health status remains compromised even well after cardiac surgery because of persistent liver dysfunction.

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Summary

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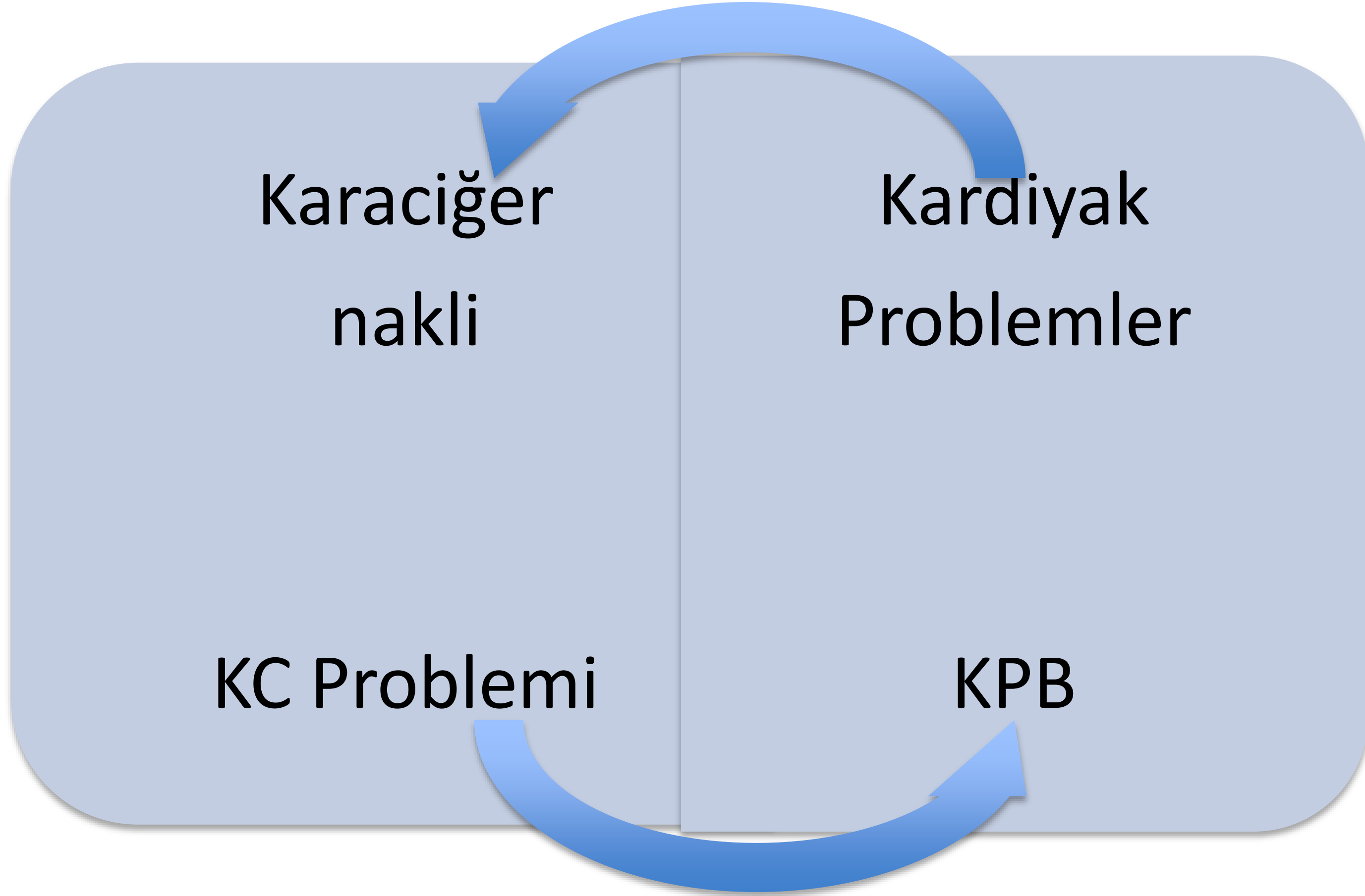
# Sonuç

- Şiddetli KC hastalığı + İyi Myokardiyal Fonksiyon
  - **Kombine Karaciğer Nakli + Kardiyak cerrahi**
- Şiddetli KC hastalığı + Kötü Myokardiyal Fonksiyon
  - **Kombine Kalp-Karaciğer Nakli ?**



*Diaz, J Cardiothorac Vasc Anesth, 2012*
*Modi, Interact Cardiovasc Thorac Surg, 2010*

# Problem



# Problem

# Geçmişte

- MORBİDİTE MORTALİTE
  - Operatif komplikasyonlar
  - Kötü greft fonksiyonu

# Günümüzde

- Cerrahi teknikte iyileşme
- İmmunsupressif tedavide ilerleme
- Uzun sağ kalım

**Kardiyovasküler komplikasyonları MORBİDİTE –MORTALİTE'nin önemli nedeni haline getirmiştir**

# KVS Problemleri

- Santral Hipovolemi
- Sirotik Kardiyomyopati
- Koroner Arter Hastalığı

Artmış İntravasküler Hacim

Azalmış Effektif Plazma Hacmi

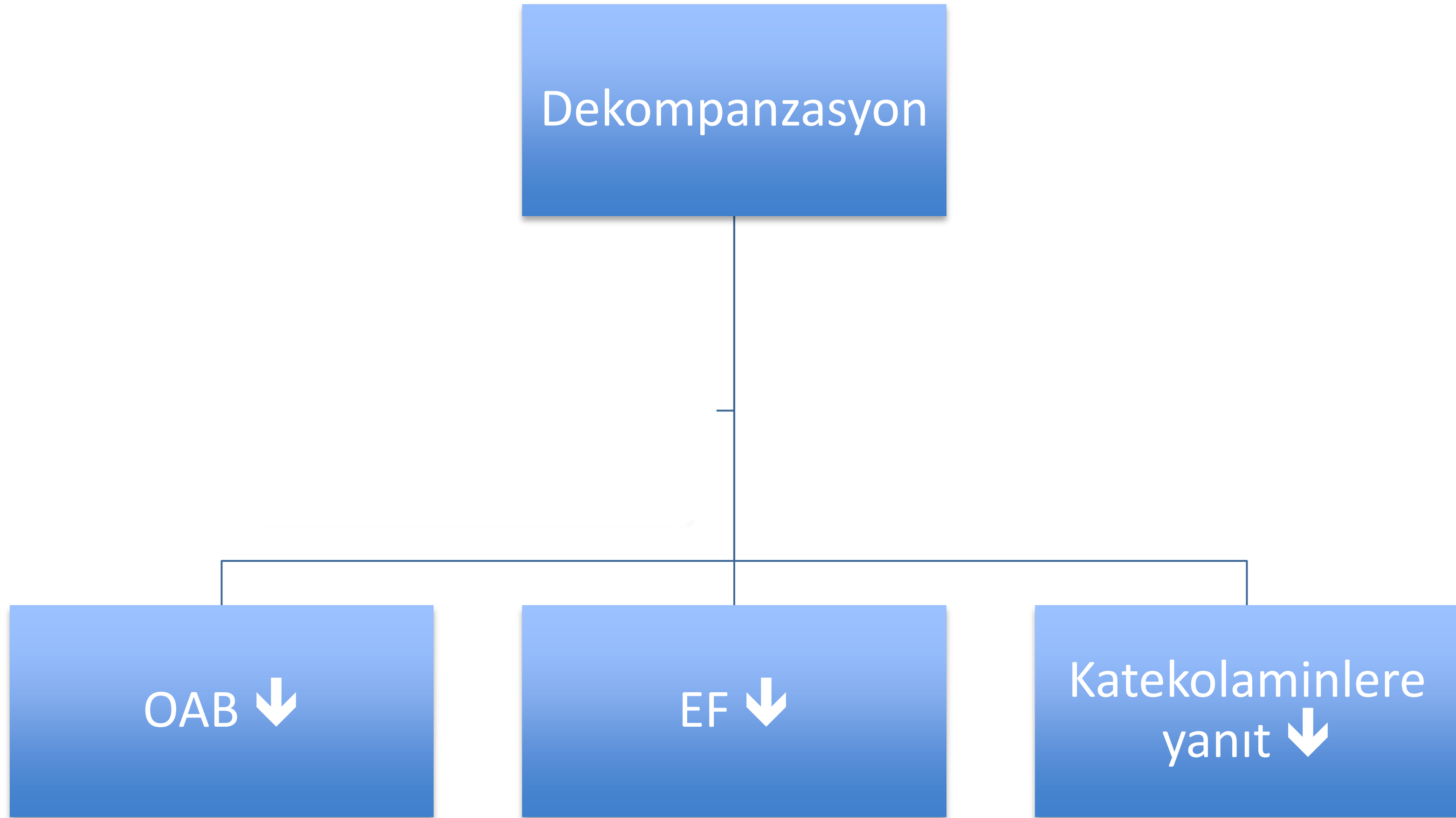
Sirotik kardiyomyopati

Anormal vasküler kompliyans

Volüm Replasmanı



*Moller, World J Gastroenterol, 2006*






*Moller, World J Gastroenterol, 2006*

# Koroner Arter Hastalığı

| Bağımsız risk faktörü | Genel risk faktörleri | Hastaya özel risk faktörleri |
| --- | --- | --- |
| • NAFLD | • İleri yaş<br>• DM | • Hipertansiyon<br>• Aile öyküsü<br>• Sigara |



*Ehtisham, Liver Transpl, 2009*

# Tanı

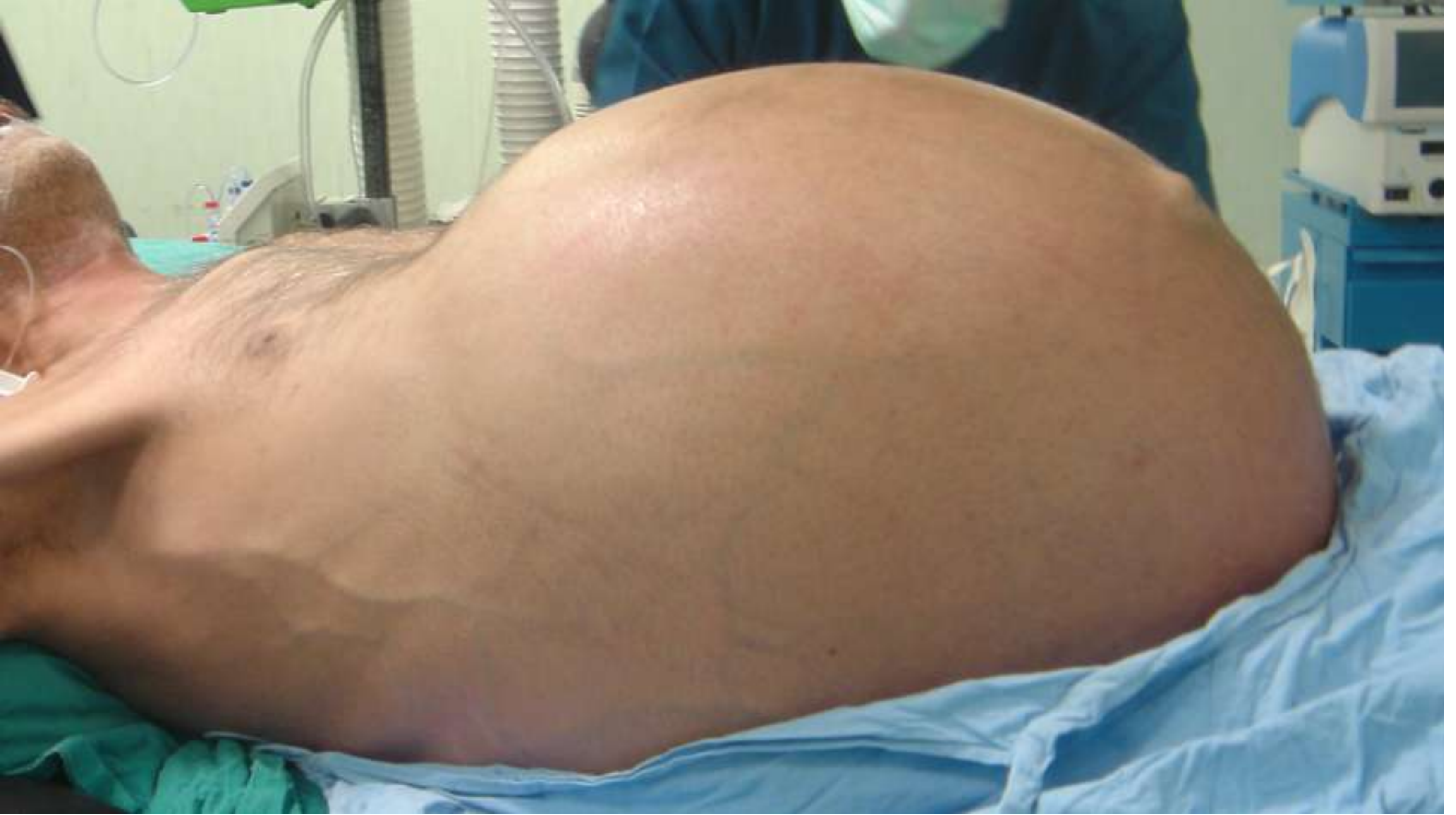
- Önerilen bir algoritm mevcut değil

# Klinik

- Gizli kalır

Semptomlar egzersizle ortaya çıkar

# Klinik



## Cardiac Hemodynamic and Coronary Angiographic Characteristics of Patients Being Evaluated for Liver Transplantation

Patient characteristics categorized according to coronary artery disease status

| Variable | Coronary Artery Narrowing | | | p Value |
|---|---|---|---|---|
| | None (n = 64) | Mild (n = 58) | Moderate to Severe (n = 39) | |
| Age (yrs) | 54 ± 7 | 59 ± 8 | 59 ± 7 | 0.002 |
| Men | 33 (52%) | 42 (72%) | 29 (74%) | 0.019 |
| Hypertension | 10 (16%) | 17 (29%) | 23 (59%) | <0.001 |
| Diabetes mellitus | 16 (25%) | 21 (36%) | 22 (56%) | <0.001 |
| Smoker | 21 (33%) | 15 (26%) | 17 (44%) | NS |

suggesting abnormalities in left ventricular diastolic compliance. In conclusion, this study showed a high prevalence of coronary risk factors and unknown moderate to severe CAD in patients with end-stage liver disease being referred for LT. © 2006 Elsevier Inc. All rights reserved. (Am J Cardiol 2006;98:178–181)



*Tiukinhoy, Am J Cardiol, 2006*

# KC Naklinde KVS Risk Faktörleri

- Yaş > 50
- Erkek cinsiyet
- DM
- Obezite

0-1 Risk Faktörü
varsa
KAH riski ⥥

Alkolik Olmayan
Steatohepatit
Bağımsız Risk Faktörü

# Stres Testleri

- Dobutamin Stres Ekokardiyografi
- Dobutamin Myokardiyal Perfüzyon Görüntüleme

*Davidson, Am J Cardiol, 2002*

# Tarama Testleri

- Gerekli mi?

**Clinical Burden of Screening Asymptomatic Patients for Coronary Artery Disease Prior to Liver Transplantation**

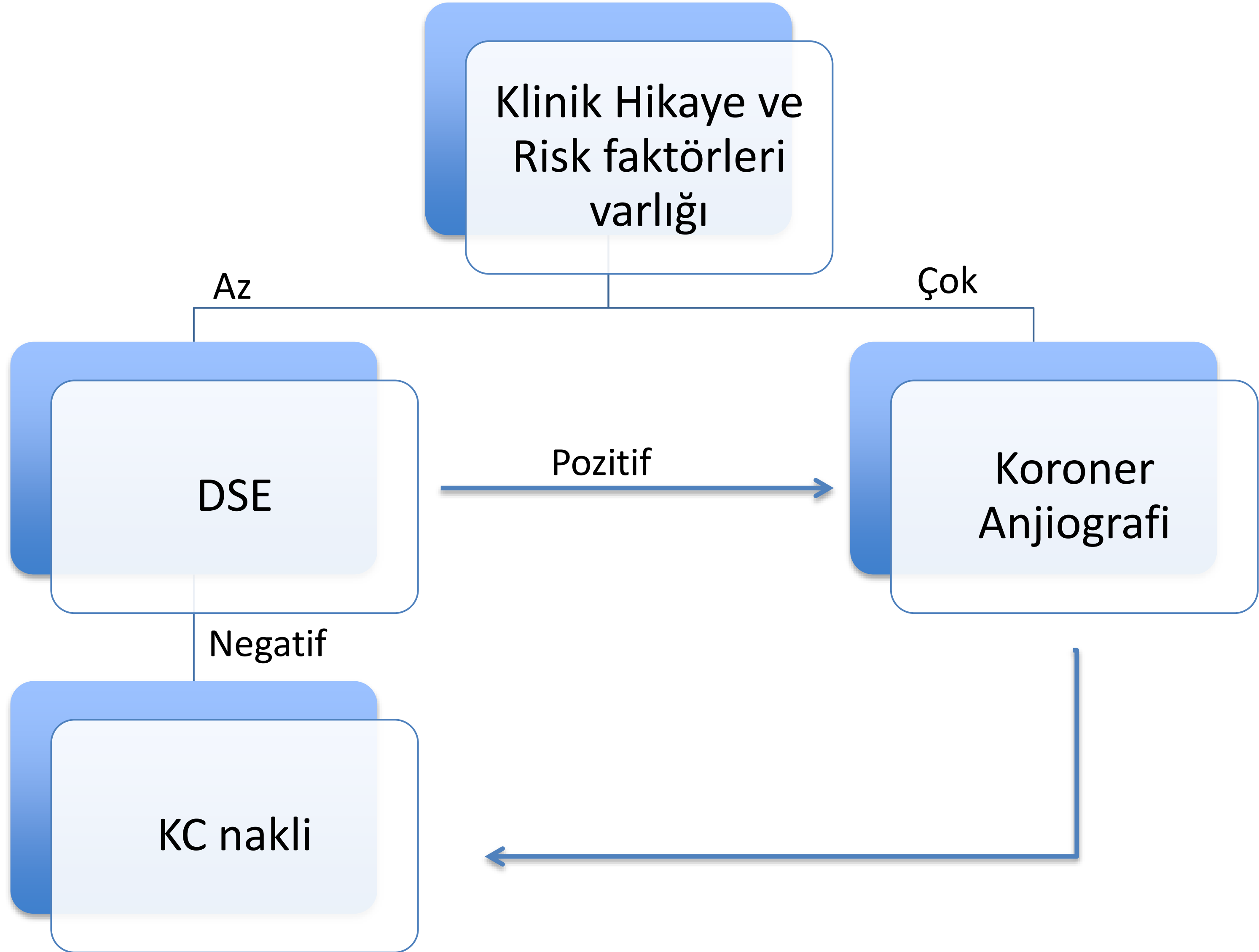
D. Filì[a,*], G. Vizzini[a], D. Biondo[b], G. Pietrosi[a], R. Volpes[a], U. Palazzo[b], A. D'Antoni[a] I. Petridis[a], A. Luca[c] and B. Gridelli[d]

# Fili, Am J Transpl, 2009

- 611 semptomatik hasta
- 2’den fazla risk faktörü olan
  - 500 hasta

# Tarama Testleri

Gerekli mi?






*Donovan, Transplantation, 1997*
*Raval, J Am Coll Cardiol, 2011*

# Sonuç

KC nakil adayları KVS hastalıkları açısından riskli gruptadır

Noninvaziv tanı araçlarının güvenilirliği net olmasa da DSE şüpheli alıcılarda yapılmalıdır

Yüksek risk grubu alıcılarda SCA altın standarttır.

# Teşekkür ederim

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