

# UF – hansı həcmdə edək, Predializ və dializ xəstələrində ürək çatmazlığına yanaşma

Uzm. Dr. Cəbrayıl Cəbrayılov

11.06.2023





# ÜRƏK ÇATIŞMAZLIĞI YENİLİKLƏR KONQRESİ

3-4 İyun 2022, Fairmont Hotel



Qeydiyyat üçün bizimlə əlaqə saxlayın  
0998852307 | 0504622080 | 0998852306 | info@micebaku.com



Ümummilli Lider Heydər Əliyevin  
anadan olmasının 100 illiyinə həsr edilmiş 100

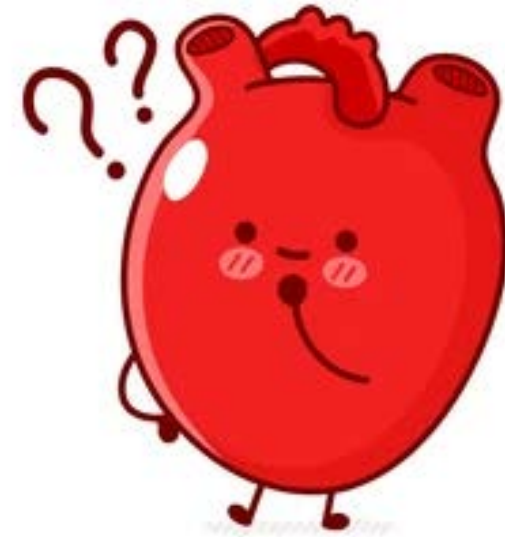
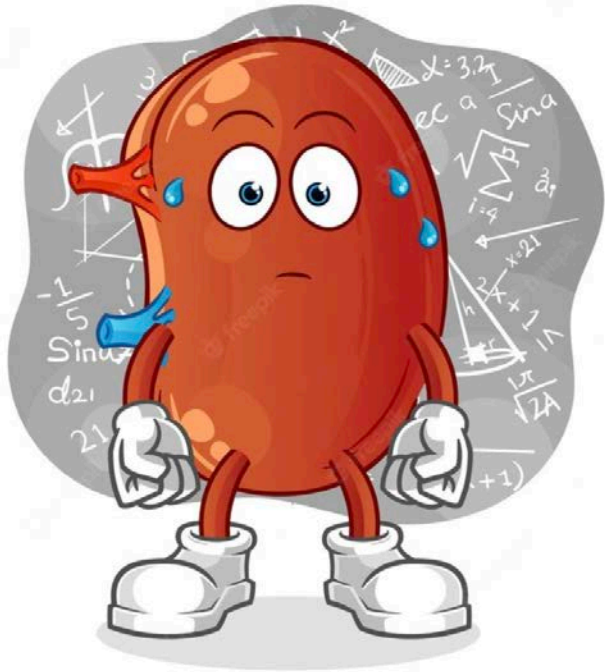
# 2-Cİ ÜRƏK ÇATIŞMAZLIĞINDA YENİLİKLƏR KONQRESİ

9-11 İYUN 2023, BAKI  
FAIRMONT OTEL - FLAME TOWERS



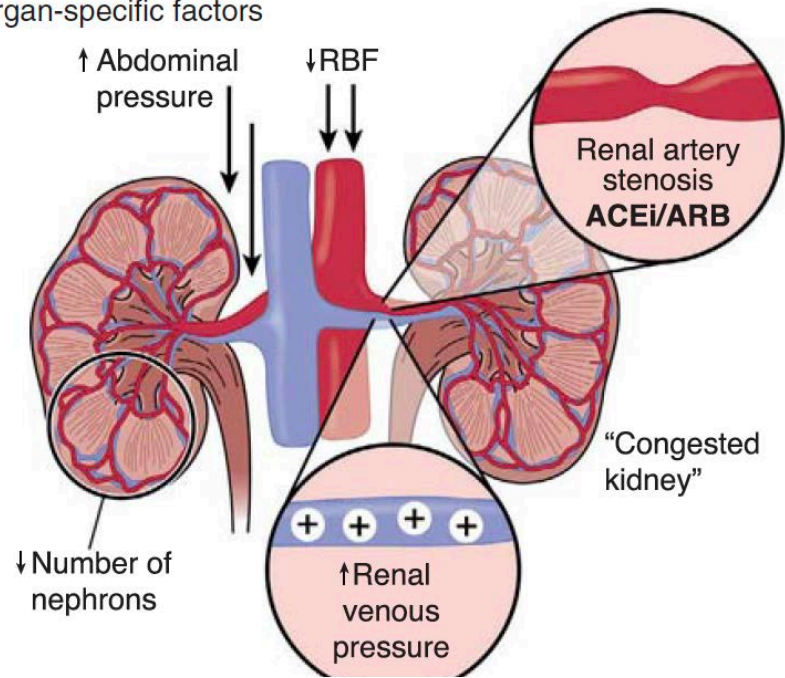
Qeydiyyat üçün : +994 50 207 09 45  
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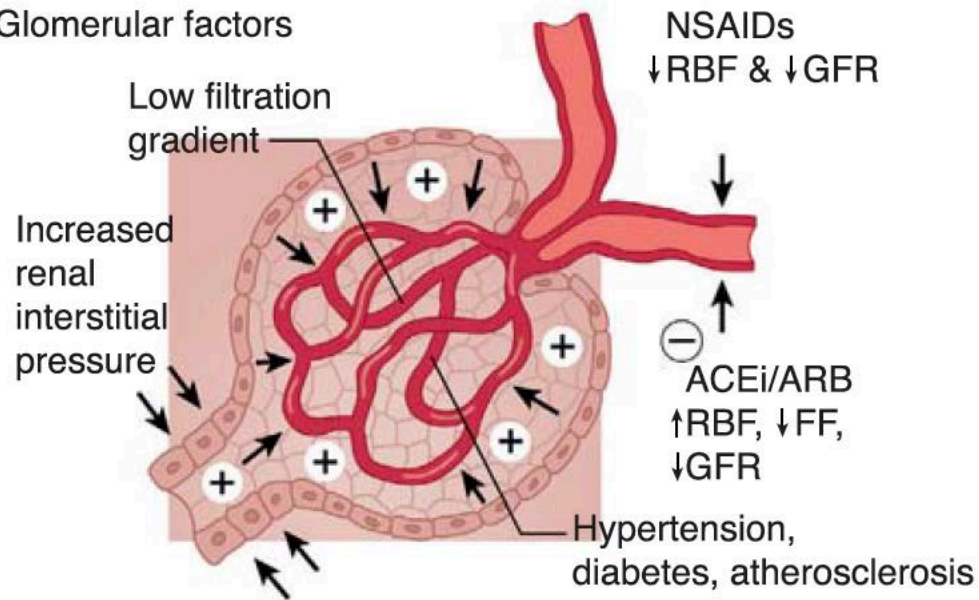


Refrakter Ödem

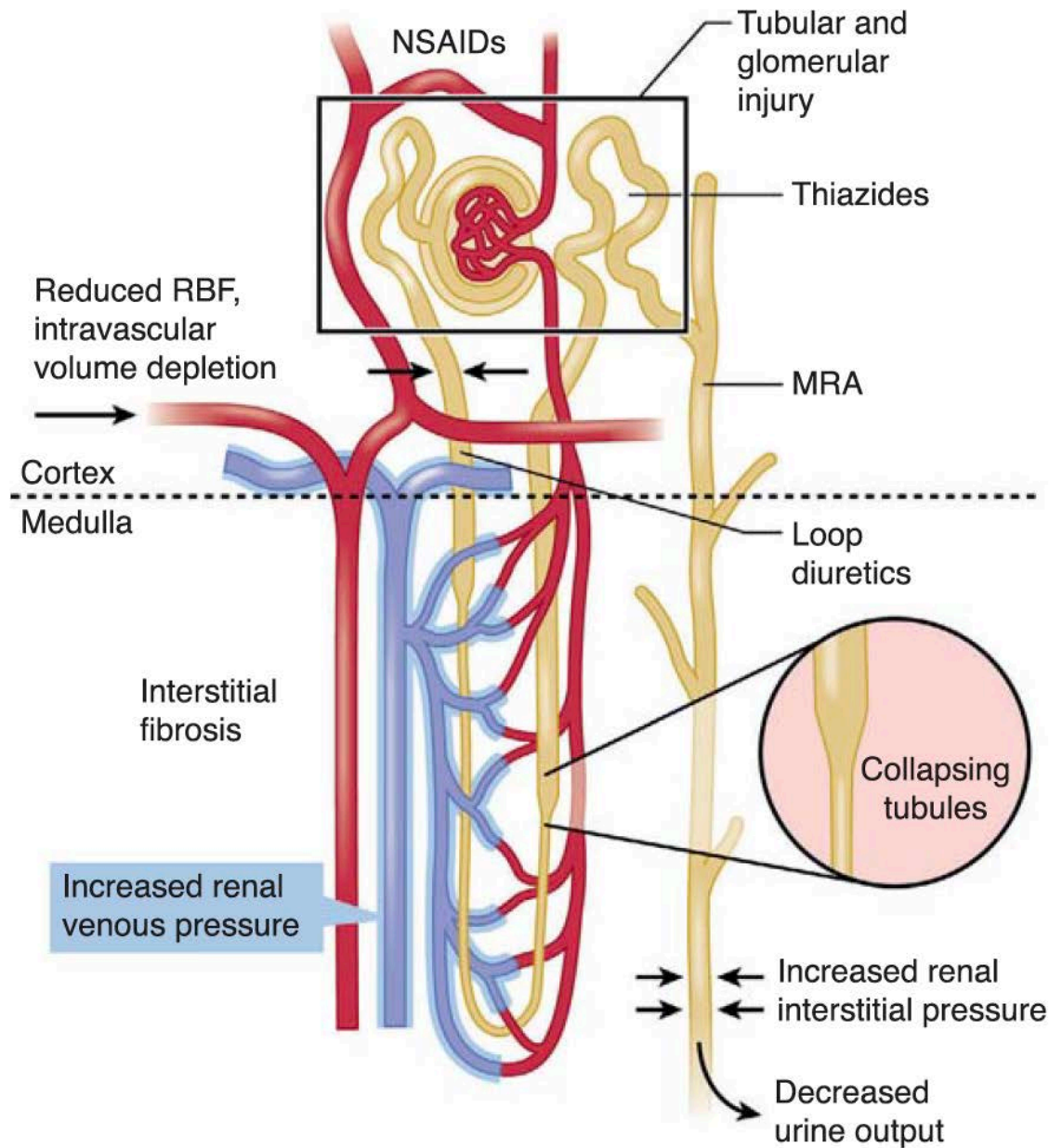
### A Organ-specific factors



### B Glomerular factors



### C Nephronic factors



# Refrakter Ödemın Səbəbləri

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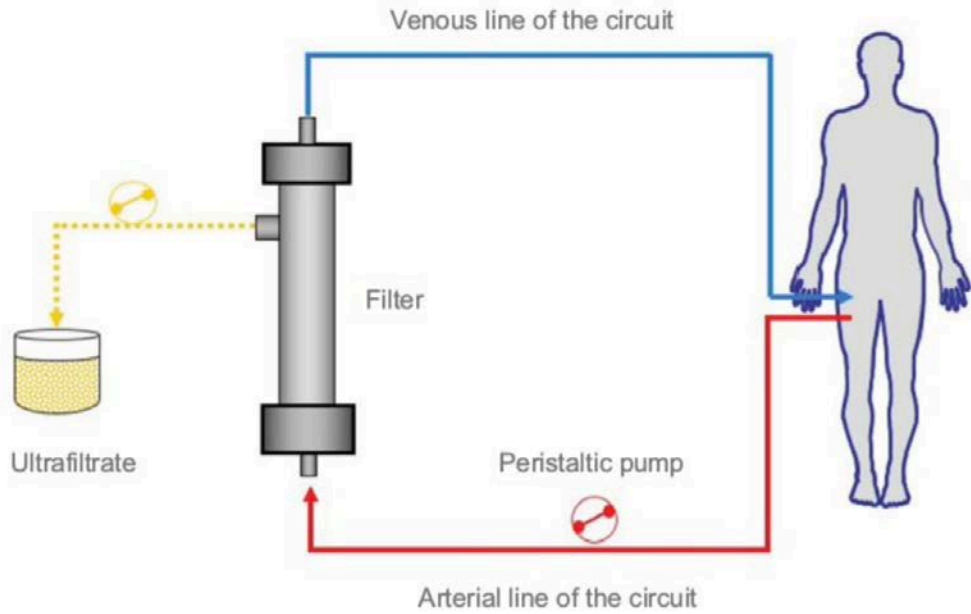
- Uyğunsuz duz və maye qəbulu
- Yetərsiz dozada və ya tezlikdə diüretik istifadəsi
- Bağırsaqdan azalmış diüretik əmilimi
- Tübulyar lümenə azalmış sekresiya
- Diuretinin inhibə etdiyi sahədən deyil nefronun digər seqmentindən natrium əmilməsi
- Diüretiklərlə yarışan başqa dərmanların istifadəsi

# Diüretikə nə zaman ara verək

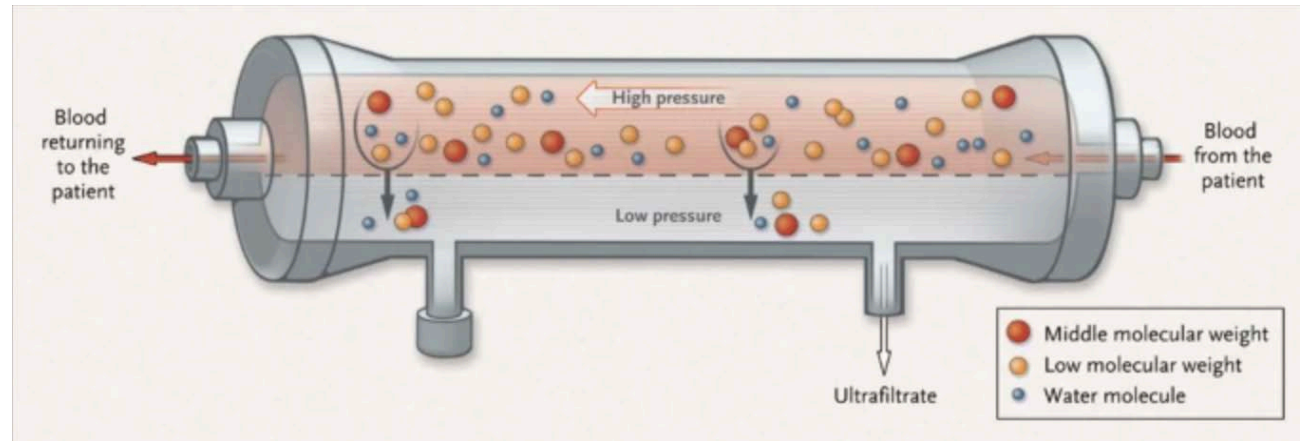
- Hiperurisemiya
  - Qan ürik asit səviyyəsi > 10 mg/dL
- Kontraksiyon alkalozu
  - pH > 7.55     $\text{HCO}_3^- > 26$  mmol/L
- Hipokalemiyalar və digər elektrolit imbalansları



# Ultrafiltrasiya



Diyalizat istifadə etmədən yalnızca transmembran təzyiq fərqi ilə qanın plazma hissəsinin ayrılmasıdır



# Ultrafiltrasiya

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## Müsbət cəhətləri

- Euvolemiyanın daha qısa müddətdə və daha sürətli əldə edilməsi
- İzotonik olduğu üçün daha az elektrolit imbalansı riski

## Mənfi cəhətləri

- Vaskulyar access ehtiyacı
- Təcrübəli personal ehtiyacı
- Daha yüksək hemodinamik instabilite riski



# Ultrafiltrasiya

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İcra olunan UF miqdarı ekstravaskulyar sahədən intravaskulyar sahəyə maye keçişindən daha sürətli olmamalıdır

Məsləhət görülən maksimal sürət 15 ml/dəq

# Ultrafiltrasiya

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Ən çox görülən yan təsir hipotoniyaadır

- Daha qısa aralıqlarla dializ
- Daha uzun dializ seansı

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## Heart Failure

# Ultrafiltration Versus Usual Care for Hospitalized Patients With Heart Failure

## The Relief for Acutely Fluid-Overloaded Patients With Decompensated Congestive Heart Failure (RAPID-CHF) Trial

Bradley A. Bart, MD, FACC,\* Andrew Boyle, MD,\* Alan J. Bank, MD, FACC,\*  
Inder Anand, MD, FACC,\* Maria Teresa Olivari, MD, FACC,\* Mark Kraemer, MD,\*  
Shari Mackedanz, RN, BSN, CCRC,\* Paul A. Sobotka, MD, FACC,†  
Mike Schollmeyer, DVM,† Steven R. Goldsmith, MD, FACC\*

*Minneapolis and Brooklyn Park, Minnesota*

## **Ultrafiltration Versus Intravenous Diuretics for Patients Hospitalized for Acute Decompensated Heart Failure**

Maria Rosa Costanzo, MD, FACC,\* Maya E. Guglin, MD, FACC,†  
Mitchell T. Saltzberg, MD, FACC,\* Mariell L. Jessup, MD, FACC,‡ Bradley A. Bart, MD, FACC,§  
John R. Teerlink, MD, FACC,|| Brian E. Jaski, MD, FACC,¶ James C. Fang, MD, FACC,#  
Erika D. Feller, MD, FACC,\*\* Garrie J. Haas, MD, FACC,†† Allen S. Anderson, MD, FACC,‡‡  
Michael P. Schollmeyer, DVM,§§ Paul A. Sobotka, MD, FACC,§§ for the UNLOAD Trial Investigators

*Lombard and Chicago, Illinois; Detroit, Michigan; Philadelphia, Pennsylvania; Minneapolis and Brooklyn Park, Minnesota; San Francisco and San Diego, California; Boston, Massachusetts; Baltimore, Maryland; and Columbus, Ohio*

# UF vs Diüretiklər

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- 200 xəstə 1:1 nisbətində 2 grupta randomizə edilir
- 90 gün boyunca və ya ölümə qədər izlənilir
- 48 saat sonunda UF qrupunda daha çox çəki azalması görüldü
- Klinik simptomlar və xəstəxana yatış günləri iki qrupda da eyni idi.
- Diüretik qrupunda daha çox hipokalemiya görülməsindən başqa digər ağırlaşmalar hər iki qrupda da eyni idi.
- 90 günlük təqibdə UF qrupunda ürək çatışmazlığı səbəbi ilə daha az rehospitalizasiya görüldü

ORIGINAL ARTICLE

## Ultrafiltration in Decompensated Heart Failure with Cardiorenal Syndrome

Bradley A. Bart, M.D., Steven R. Goldsmith, M.D., Kerry L. Lee, Ph.D.,  
Michael M. Givertz, M.D., Christopher M. O'Connor, M.D., David A. Bull, M.D.,  
Margaret M. Redfield, M.D., Anita Deswal, M.D., M.P.H., Jean L. Rouleau, M.D.,  
Martin M. LeWinter, M.D., Elizabeth O. Ofili, M.D., M.P.H.,  
Lynne W. Stevenson, M.D., Marc J. Semigran, M.D., G. Michael Felker, M.D.,  
Horng H. Chen, M.D., Adrian F. Hernandez, M.D., Kevin J. Anstrom, Ph.D.,  
Steven E. McNulty, M.S., Eric J. Velazquez, M.D., Jenny C. Ibarra, R.N., M.S.N.,  
Alice M. Mascette, M.D., and Eugene Braunwald, M.D.,  
for the Heart Failure Clinical Research Network

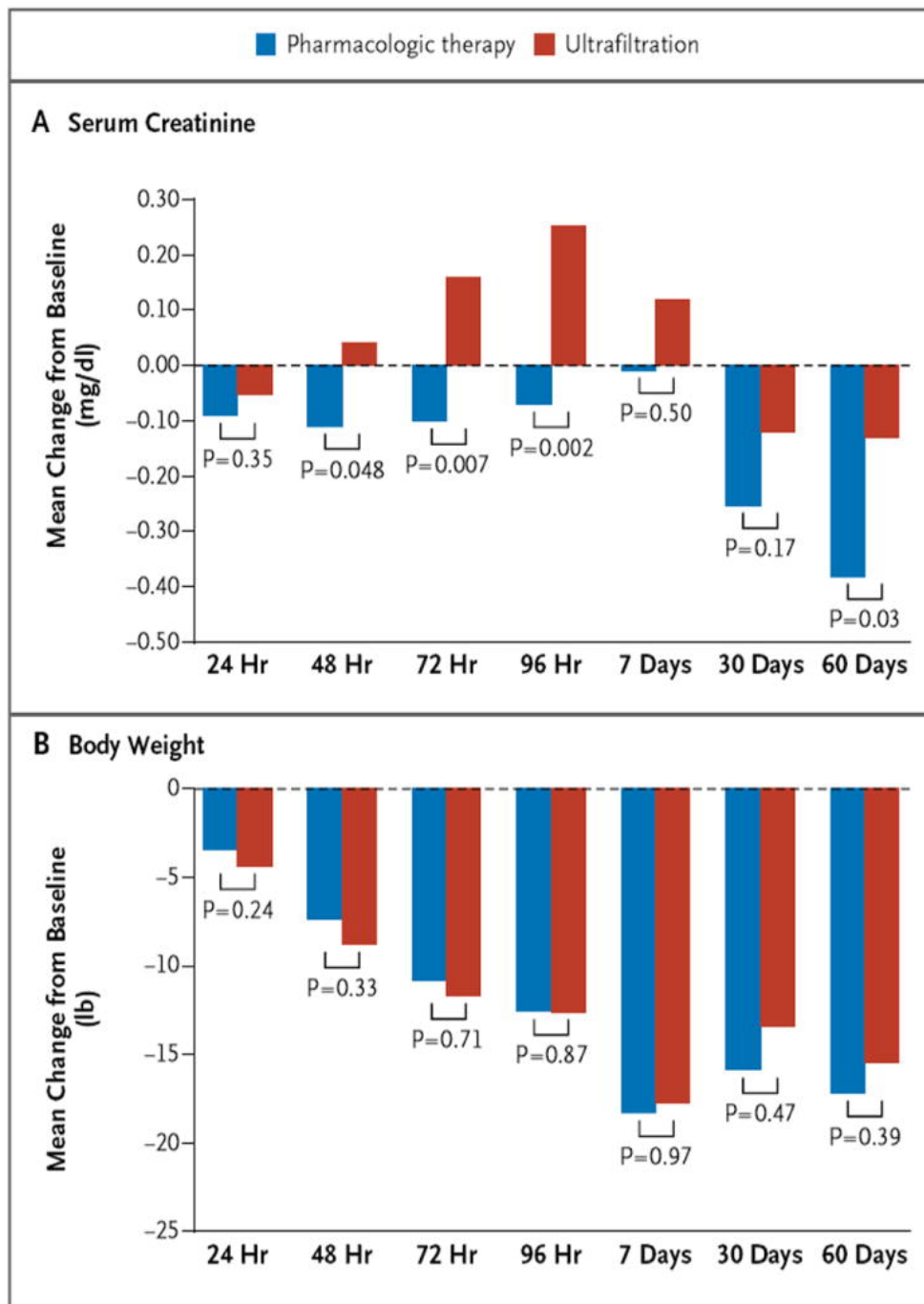


Kardiorenal sindromu olan 188 xəstə  
2 qrupda randomizə edildi  
UF və medikal müalicə

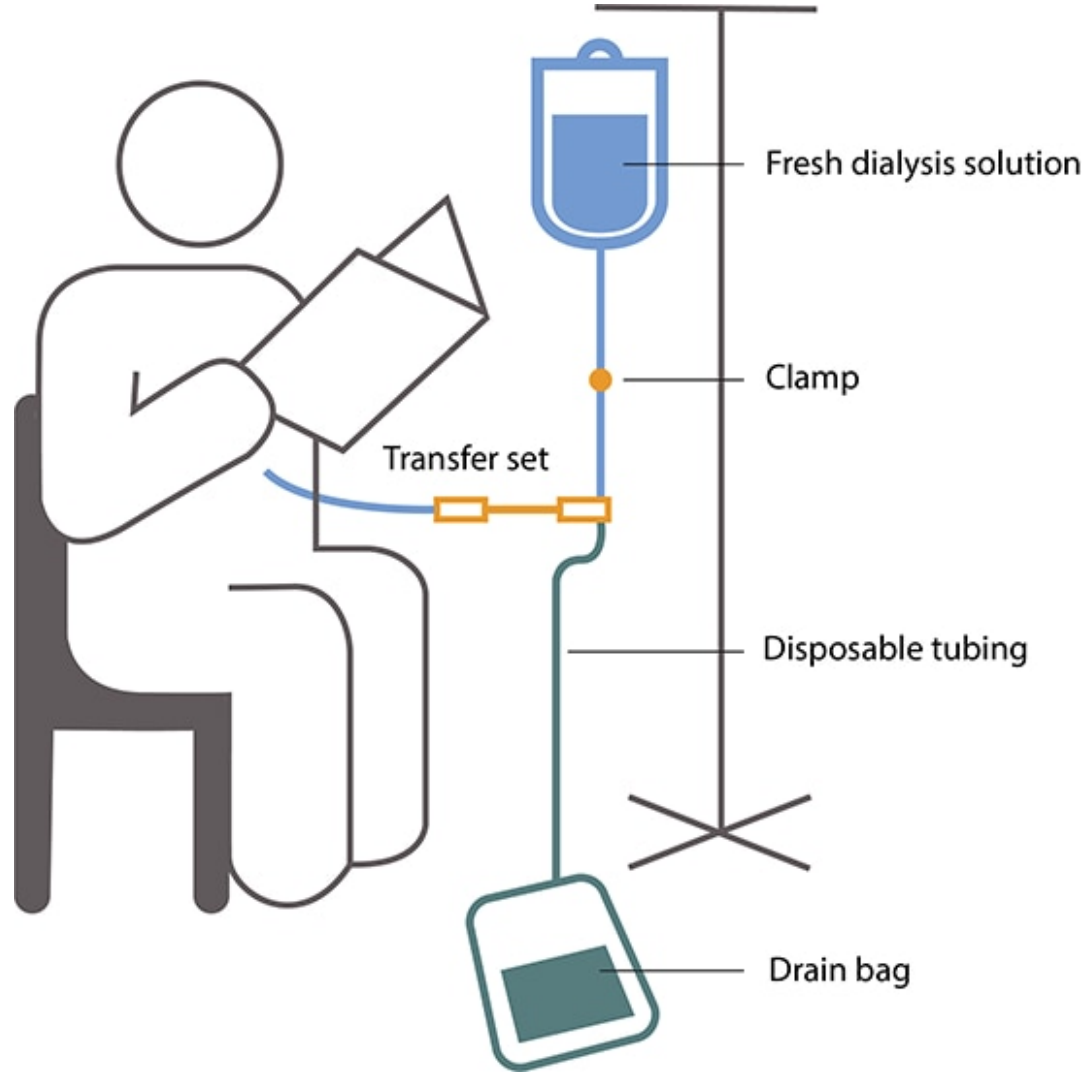
ORIGINAL ARTICLE

# Ultrafiltration in Decompensated Heart Failure with Cardiorenal Syndrome

Bradley A. Bart, M.D., Steven R. Goldsmith, M.D., Kerry L. Lee, Ph.D., Michael M. Givertz, M.D., Christopher M. O'Connor, M.D., David A. Bull, M.D., Margaret M. Redfield, M.D., Anita Deswal, M.D., M.P.H., Jean L. Rouleau, M.D., Martin M. LeWinter, M.D., Elizabeth O. Ofili, M.D., M.P.H., Lynne W. Stevenson, M.D., Marc J. Semigran, M.D., G. Michael Felker, M.D., Horng H. Chen, M.D., Adrian F. Hernandez, M.D., Kevin J. Anstrom, Ph.D., Steven E. McNulty, M.S., Eric J. Velazquez, M.D., Jenny C. Ibarra, R.N., M.S.N., Alice M. Mascette, M.D., and Eugene Braunwald, M.D.,  
for the Heart Failure Clinical Research Network



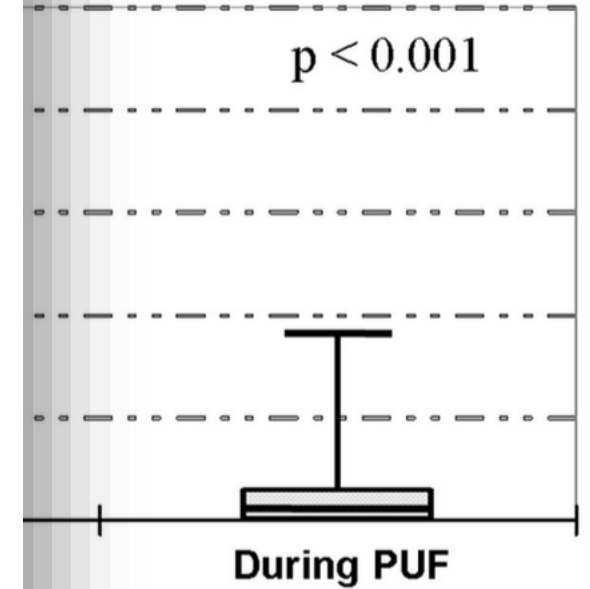
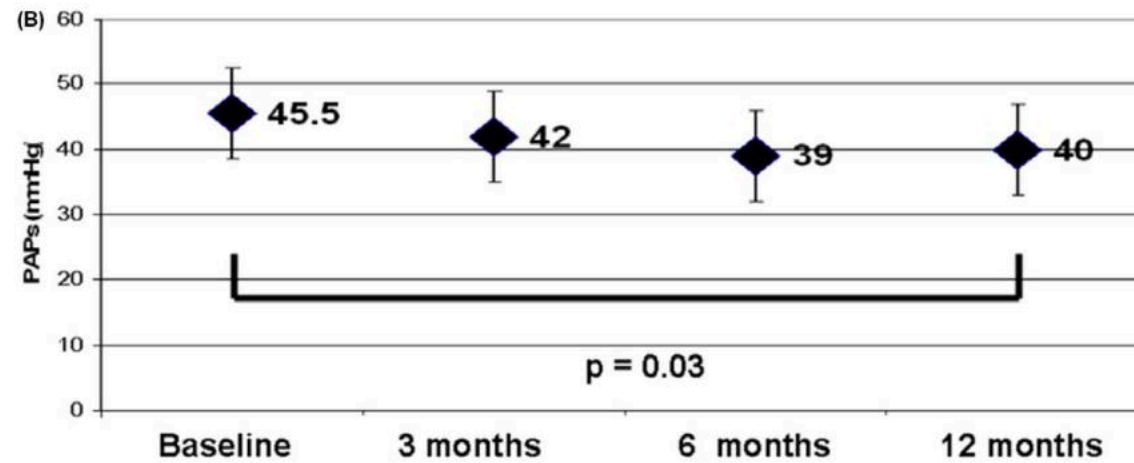
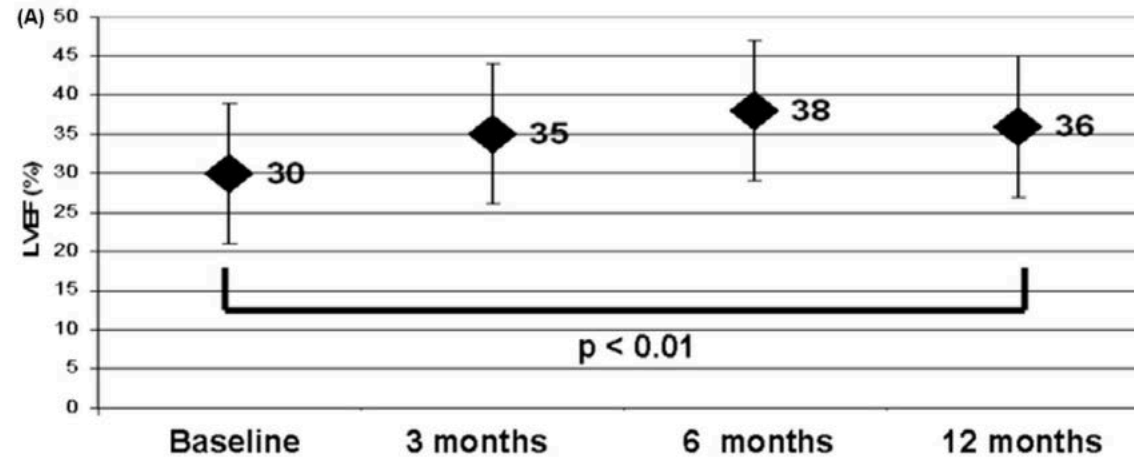
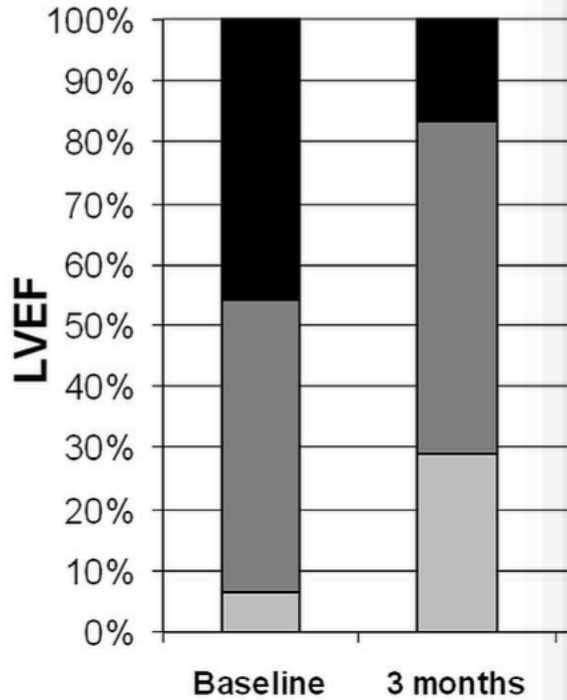
# Peritoneal Ultrafiltrasiya



- Xəstənin qarın boşluğuna yerləşdirilmiş xüsusi kateter
- Yüksək molekul ağırlıqlı polimer – icodextrin
- Gündə 1 dəfə dəyişim
- Hemodinamik olaraq daha güvənli
- Uzun müddətdə yavaş UF



# Peritoneal



Bertoli et al.  
Perit Dia Int, Vol. 34,

# Statinlär



- 2.1.1: In adults aged  $\geq 50$  years with  $eGFR < 60$  ml/min/1.73 m<sup>2</sup> but not treated with chronic dialysis or kidney transplantation (GFR categories G3a-G5), we recommend treatment with a statin or statin/ezetimibe combination. (1A)
- 2.1.2: In adults aged  $\geq 50$  years with CKD and  $eGFR \geq 60$  ml/min/1.73 m<sup>2</sup> (GFR categories G1-G2) we recommend treatment with a statin. (1B)
- 2.2: In adults aged 18–49 years with CKD but not treated with chronic dialysis or kidney transplantation, we suggest statin treatment in people with one or more of the following (2A):
- known coronary disease (myocardial infarction or coronary revascularization)
  - diabetes mellitus
  - prior ischemic stroke
  - estimated 10-year incidence of coronary death or non-fatal myocardial infarction  $> 10\%$
- 2.3.1: In adults with dialysis-dependent CKD, we suggest that statins or statin/ezetimibe combination not be initiated. (2A)
- 2.3.2: In patients already receiving statins or statin/ezetimibe combination at the time of dialysis initiation, we suggest that these agents be continued. (2C)
- 2.4: In adult kidney transplant recipients, we suggest treatment with a statin. (2B)



# Statinlär



Study	<a href="#">4D 2005<sup>8</sup></a>	<a href="#">AURORA 2009<sup>9</sup></a>	<a href="#">SHARP 2011<sup>10</sup></a>	<a href="#">Jung 2020<sup>11</sup></a>
Study type	RCT	RCT	RCT	Retrospective cohort study
Patients	1255 ESRD diabetic patients receiving MHD randomly assigned to atorvastatin 20 mg daily or placebo	2776 ESRD patients aged 50 to 80 years undergoing MHD randomly assigned to rosuvastatin 10 mg daily or placebo	9270 CKD patients (3023 on MHD and 6247 not) with no history of MI or CR randomly assigned to simvastatin 20 mg + ezetimibe 10 mg daily or placebo	65,404 ESRD patients on MHD, aged $\geq 30$ years; 41,549 (73.2%) were on statin (statin-ezetimibe/statin)
Primary endpoint	Composite of CV death, nonfatal MI, and stroke	Combined primary CV death, nonfatal MI, or nonfatal stroke	First major atherosclerotic event	All-cause mortality
Secondary endpoint	All-cause mortality and all cardiac and	All-cause mortality and individual CV events		
Conclusion	Atorvastatin had no effect on the composite endpoint	Rosuvastatin had no significant effect on composite endpoint	Simvastatin + ezetimibe safely reduced the incidence of major atherosclerotic events	Statin therapy, preferably combined with ezetimibe, was associated with a lower risk of all-cause mortality

# Kalium Tutucu Diüretiklər



[Intervention Review]

## **Aldosterone antagonists for preventing the progression of chronic kidney disease**

Davide Bolignano<sup>1</sup>, Suetonia C Palmer<sup>2</sup>, Sankar D Navaneethan<sup>3</sup>, Giovanni FM Strippoli<sup>4,5,6,7,8,9</sup>

Aldosteron antoqonistləri yalnızca Diyabetik Nefropatiyada deyil digər səbəbli Xroniki Böyrək Çatışmazlığının irəliləmə sürətində və proteinuriyada azalmaya səbəb olur

Spironolaktonun məsləhət görülən dozası 25-50 mg/gün

# Kalium Tutucu Diüretiklər



Ölüm riskində azalma (RR = 0.42,  $P < 0.0001$ ),  
Kardiovaskulyar risklərdə azalma (RR = 0.54,  $P = 0.008$ )

Qan kalium konsentrasiyaları nisbi yüksək olsa da  
müalicə olunmayan qrupla müayisədə hiperkalima  
riskində artışı yoxdur (RR = 1.21,  $P = 0.31$ )

## Safety and Efficacy of Spironolactone in Dialysis-Dependent Patients: Meta-Analysis of Randomized Controlled Trials

Jing Liu<sup>1</sup>, WanYu Jia<sup>2</sup> and Chen Yu<sup>1\*</sup>

<sup>1</sup> Department of Nephrology, Tongji Hospital, Tongji University School of Medicine, Shanghai, China, <sup>2</sup> Department of Pediatrics, Clinical Center of Pediatric Nephrology of Henan Province, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China

# SGLT2 inhibitorları



ORIGINAL ARTICLE

## Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes

Bernard Zinman, M.D., Christoph Wanner, M.D., John M. Lachin, Sc.D., David Fitchett, M.D., Erich Bluhmki, Ph.D., Stefan Hantel, Ph.D., Michaela Mattheus, Dipl. Biomath., Theresa Devins, Dr.P.H., Odd Erik Johansen, M.D., Ph.D., Hans J. Woerle, M.D., Uli C. Broedl, M.D., and Silvio E. Inzucchi, M.D., for the EMPA-REG OUTCOME Investigators

ORIGINAL ARTICLE

## Canagliflozin and Cardiovascular and Renal Events in Type 2 Diabetes

Bruce Neal, M.B., Ch.B., Ph.D., Vlado Perkovic, M.B., B.S., Ph.D., Kenneth W. Mahaffey, M.D., Dick de Zeeuw, M.D., Ph.D., Greg Fulcher, M.D., Ngozi Erondu, M.D., Ph.D., Wayne Shaw, D.S.L., Gordon Law, Ph.D., *et al.*, M.D., and David R. Matthews, D.Phil., B.M., B.Ch., the CANVAS Program Collaborative Group\*

ORIGINAL ARTICLE

## Dapagliflozin and Cardiovascular Outcomes in Type 2 Diabetes

S.D. Wiviott, I. Raz, M.P. Bonaca, O. Mosenzon, E.T. Kato, A. Cahn, M.G. Silverman, T.A. Zelniker, J.F. Kuder, S.A. Murphy, D.L. Bhatt, L.A. Leiter, D.K. McGuire, J.P.H. Wilding, C.T. Ruff, I.A.M. Gause-Nilsson, M. Fredriksson, P.A. Johansson, A.-M. Langkilde, and M.S. Sabatine, for the DECLARE-TIMI 58 Investigators\*

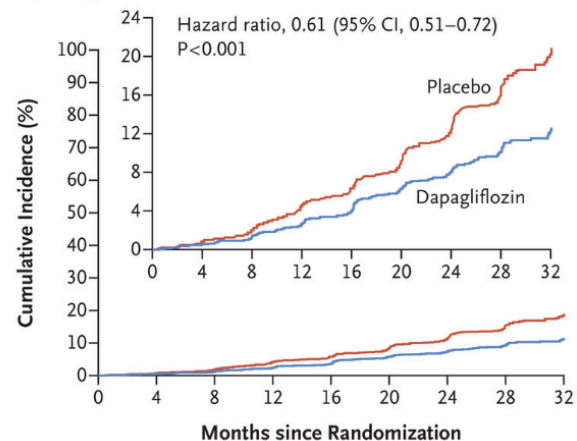
# SGLT2 inhibitorları

ORIGINAL ARTICLE

## Dapagliflozin in Patients with Chronic Kidney Disease

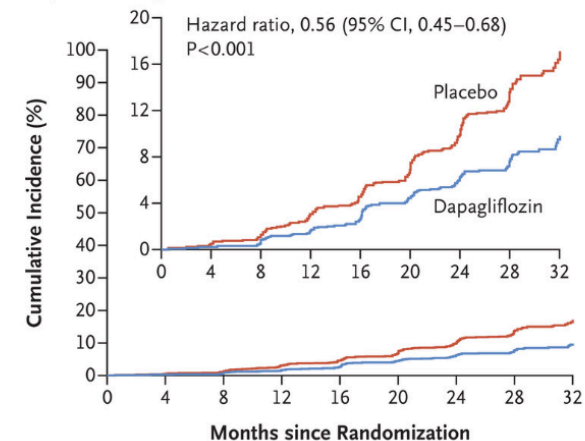
Hiddo J.L. Heerspink, Ph.D., Bergur V. Stefánsson, M.D., Ricardo Correa-Rotter, M.D., Glenn M. Chertow, M.D., Tom Greene Fan-Fan Hou, M.D., Johannes F.E. Mann, M.D., John J.V. McMurray Magnus Lindberg, M.Sc., Peter Rossing, M.D., C. David Sjöström, Roberto D. Toto, M.D., Anna-Maria Langkilde, M.D., and David C. Wheeler for the DAPA-CKD Trial Committees and Investigators\*

**A Primary Composite Outcome**



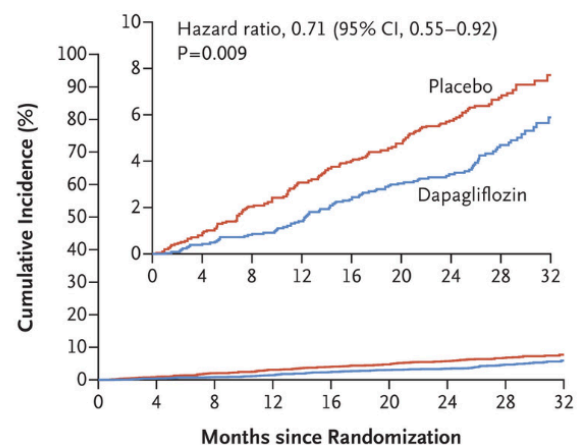
No. at Risk	
Placebo	2152 1993 1936 1858 1791 1664 1232 774 270
Dapagliflozin	2152 2001 1955 1898 1841 1701 1288 831 309

**B Renal-Specific Composite Outcome**



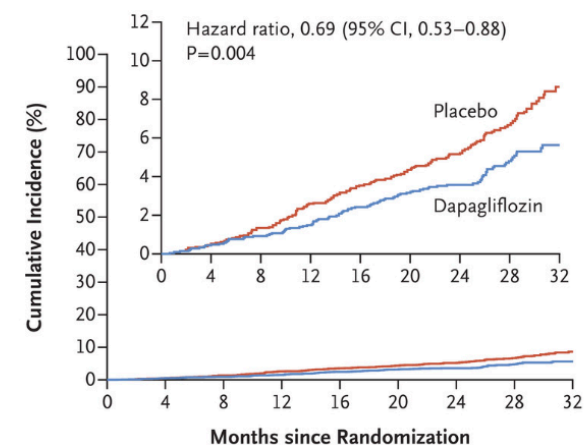
No. at Risk	
Placebo	2152 1993 1936 1858 1791 1664 1232 774 270
Dapagliflozin	2152 2001 1955 1898 1841 1701 1288 831 309

**C Composite of Death from Cardiovascular Causes or Hospitalization for Heart Failure**



No. at Risk	
Placebo	2152 2023 1989 1957 1927 1853 1451 976 360
Dapagliflozin	2152 2035 2021 2003 1975 1895 1502 1003 384

**D Death from Any Cause**



No. at Risk	
Placebo	2152 2035 2018 1993 1972 1902 1502 1009 379
Dapagliflozin	2152 2039 2029 2017 1998 1925 1531 1028 398

# SGLT2 inhibitorları



**Recommendation 4.2.1: We recommend treating patients with T2D, CKD, and an eGFR  $\geq 30$  ml/min per  $1.73 \text{ m}^2$  with an SGLT2i (1A).**

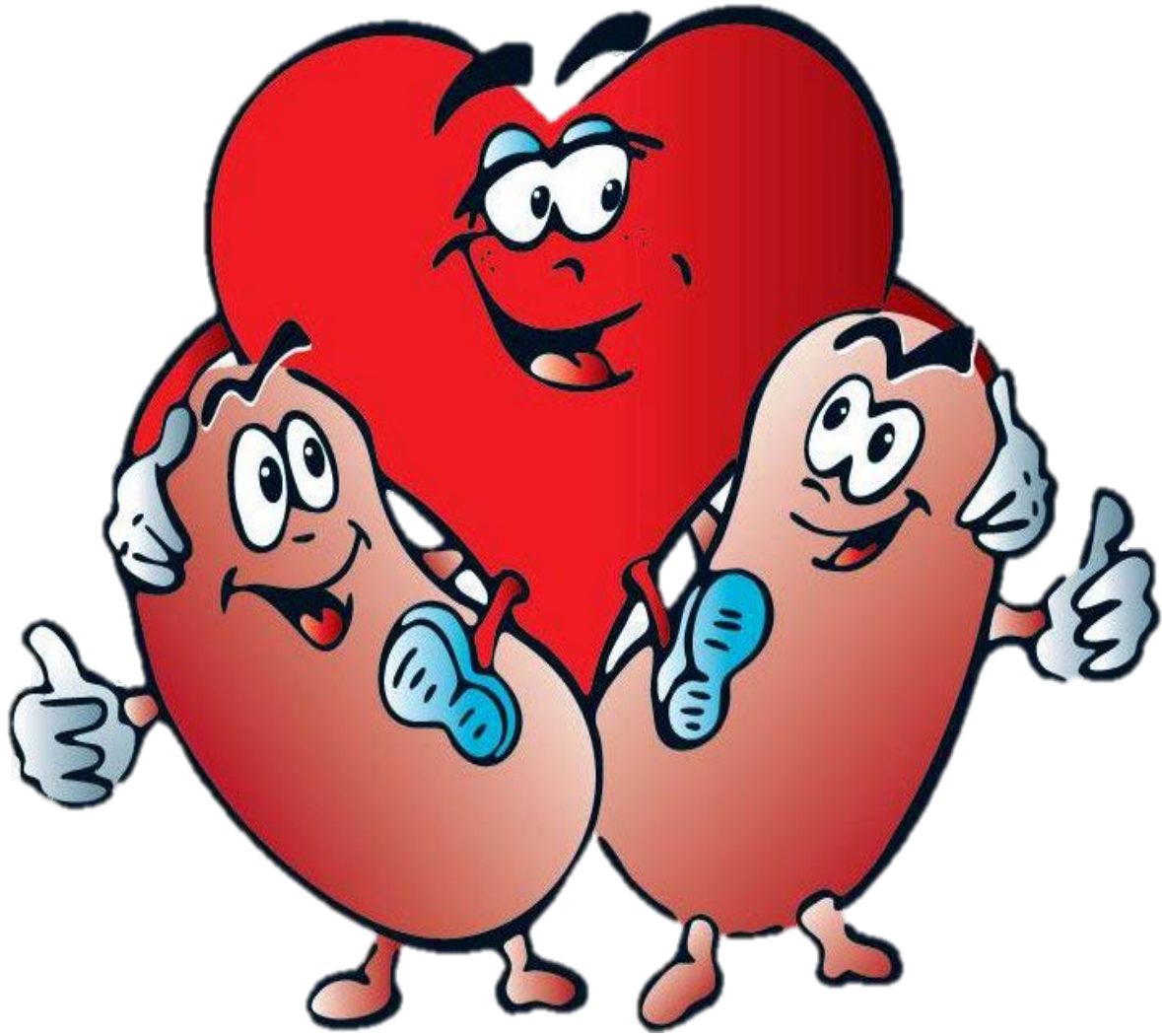
**Practice Point 4.2.7: Once an SGLT2i is initiated, it is reasonable to continue an SGLT2i even if the eGFR falls below  $30 \text{ ml/min per } 1.73 \text{ m}^2$ , unless it is not tolerated or kidney replacement therapy is initiated.**

## ***Consensus Statement***

- An SGLT2i with proven kidney or cardiovascular benefit is recommended for patients with T2D, CKD, and eGFR  $\geq 20 \text{ mL/min/1.73 m}^2$ . Once initiated, the SGLT2i can be continued at lower levels of eGFR.







**Səbriniz üçün  
təşəkkür edirəm**