TIREX-KUIS AI Çapraz Böbrek Nakil Yazılımı

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24 Ekim 2025

Sunum Planı

- Programın geliştirilme amacı ve hedefleri, potansiyel faydaları
- Yazılımın teknik altyapısı ,algoritması ve işleyişi
- Çapraz nakil programı için uygulama önerileri

Programın Amacı ve Hedefleri

- Daha fazla sayıda hastaya nakil şansı sağlamak
- Organ sağ kalımı oranını artırmak
- Sensitize hastalara nakil yapmak
- Ülke kaynaklarında tasarruf etmek

Tarihçe

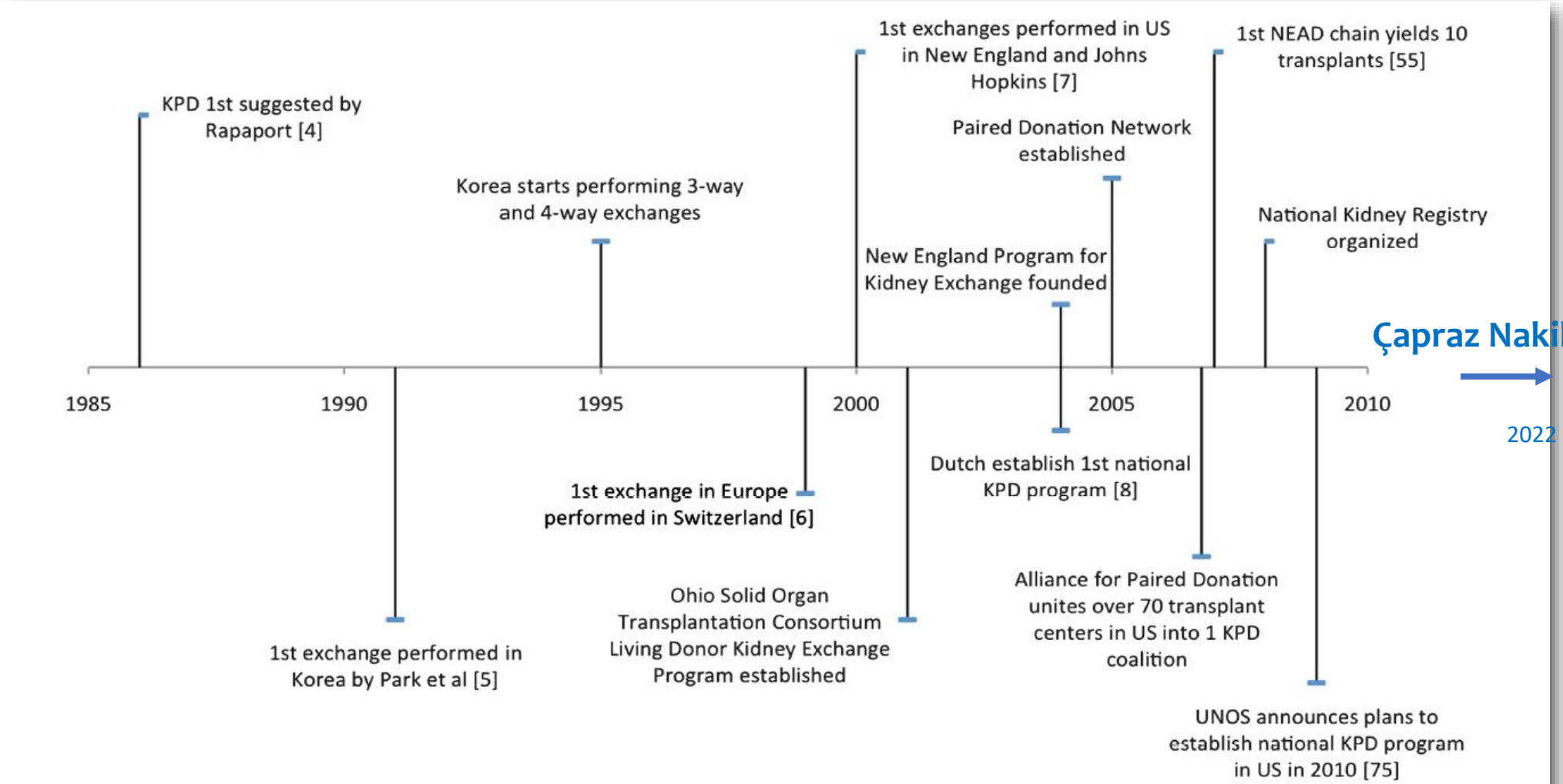

Fig. 1. A history of kidney paired donation from its original proposal by Felix Rapaport to the present day.

Çapraz Nakil Yazılımı

2022

Wallis, et al. Nephrology Dialysis Transplantation, 2011

Ülkemizdeki Çapraz Nakil Uygulamaları

GÜNDEM DÜNYA EKONOMİ SPOR ANALİZ KÜLTÜR İNFOGRAFİK PODCAST VİDEO FOTOĞRAF

SAĞLIK

180 hastaya çapraz karaciğer nakli gerçekleştiren merkezden organ bağışı çağrısı

Dünyada ilk 7'li çapraz karaciğer naklini 2 kez gerçekleştiren, 180 çoklu nakile imza atan Malatya İnönü Üniversitesi Karaciğer Nakil Enstitüsü, organ bağışının arttırılmasını istiyor.

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Brief Communication

The first 4-way liver paired exchange from an interdisciplinary collaboration between health care professionals and design economists

Sezai Yilmaz [1,*], Tayfun Sönmez [2], M. Utku Ünver [2,3], Volkan Ince [1], Sami Akbulut [1], Burak Isik [1], Sukru Emre [1]

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Brief Communication

Enhanced role of multipair donor swaps in response to size incompatibility: The first two 5-way and the first 6-way liver paired exchanges

Sezai Yilmaz [1,*], Tayfun Sönmez [2], M. Utku Ünver [2], Volkan Ince [1], Sami Akbulut [1], Kemal Baris Sarici [1], Burak Isik [1]

[1] Department of Surgery and Liver Transplantation, Inonu University Liver Transplant Institute, Malatya, Turkey
[2] Department of Economics, Boston College, Chestnut Hill, Massachusetts, USA

Ülkemizdeki Çapraz Böbrek Nakli Uygulamaları

Paired Exchange Kidney Transplantation Experience of Turkey

L. Yücetin, S. Tilif, N. Keçecioğlu, Ö. Yanik, A. Özkan, A. Eroğlu, H. Dheir, S. Tekin, B. Güven, A. Dinçkan, S. Kaçar, and M. Tuncer

ABSTRACT

Objective. Paired-exchange kidney transplantation (PKD) has gained in importance because of the difficulty to obtain suitable organs. The aim of this study was to compare the biochemical and clinical parameters of PKT with those of living-related kidney transplantation (LD).

Method. We compared 272 PKD performed in 3 transplant centers with 1885 LD. The 2 groups were compared for graft and patient survivals, rejection episodes, serum creatinine levels, and other biochemical parameters.

Results. The median human leukocyte antigen, mismatch was similar: PKD, 4 (95% confidence interval [CI], 3–4) and LD; 3 (95% CI, 3–4; $P = .1292$). The mean creatinine level among the PKT group of 1.07 ± .37 was lower then the LD group 1.17 ± .56 ($P = .0043$), but after the second year it was lower in the LD group (1.39 ± 0.61 and 1.16 ± 0.43; $P < .0001$). The rates of patient death (PKT, 3.31% vs LD 3.58; $P = .9603$), graft loss (2.74% vs 2.71%; $P = .8647$) and acute rejection episodes (19.48% vs 19.36%; $P = 0.9719$), were similar between the 2 groups.

Conclusions. Paired donation expands the living donor pool and decreases the number of waiting list patients. It is cost effective according to ABO incompetible transplantation.

Global Perspectives

Kidney360

Global Perspective on Kidney Transplantation: Turkey

Oya Andacoglu[1] and Fazil Tuncay Aki[2]

KIDNEY360 2: 1160–1162, 2021. doi: https://doi.org/10.34067/KID.0002542021

Introduction

The first renal transplant in Turkey was performed in 1968 at the Ista nbul University Medical School (1). However, the patient died due to ventricular fibrillation at the seventh postoperative hour (1). The first successful renal transplant in Turkey was performed at Hacettepe University by Dr. Mehmet Haberal and his colleagues in 1975, which involved a transplant from a mother to her child. This was followed by the first deceased-donor kidney transplantation in 1978, using an organ supplied by Eurotransplant (2). The law on harvesting, storage, and transplantation of organs and tissues was enacted in 1979; later that year, the first local deceased-donor kidney transplantation was performed by the same team. In 2001, the Turkish Ministry of Health established the National Coordination Center to promote transplantation activities and deceased-donor organ procurement (3). Currently, the Organ Transplantation Regulatory Unit is a subdivision of the Ministry of Health. From 2008 to 2020, a total of 33,028 renal transplants and 13,135 liver transplants have been performed, as compared with 728 heart transplants, 276 lung transplants, 65 pancreas transplants, according to the publicly available online registry of the Ministry of Health (4). Despite the large number of living-donor renal and liver transplants performed in Turkey, the number of heart, lung, pancreas, and intestinal operations and overall deceased-donor transplants are quite behind due to various factors, including low rates of deceased donation compared with Europe or the United States. According to the most recent reports from the International Organ Registry in Organ Donation and Transplantation, Turkey ranked first globally for the overall living-donor transplant rate (53.02 per million population [pmp]) and for living-donor renal transplant activity (36.64 pmp); however, Turkey was 42nd for overall deceased-donor transplant rates (at only 7.54 pmp), compared with the top three countries (Unites States, Spain and Portugal; 38.35, 37.40, and 33.80 pmp, respectively) (5,6). The deceased-donor kidney transplant rate for Turkey was 10.45 pmp (6).

(4). As of 2021, there were 78 renal transplant programs and six pancreas transplants programs listed in the country (4). There have been some major changes in the Turkish transplant regulations. First, during 2008–2010, the Ministry of Health made substantial increases in financial incentives for kidney tr ansplants. Second, the Ministry of Health gave permission for the private hospitals to perform kidney transplants. Before these regulations, only state hospitals and state universities were eligible to perform transplants. Third, there has been increase in education, for medical providers and the public, regarding organ donation. Because of these changes, the annual number of renal transplants has increased dramatically since around 2010 (Figure 1). All transplant programs and activities are closely monitored and strictly reported to the Ministry of Health. Another important data source is the Turkish Society of Nephrology (TND), which was founded in 1970. The TND initiated a reporting system in 1990 and collects data from participating centers, and their annual reports are publicly available. A caveat to the TND reports is that they do not include all centers in the country.

With all of these limitations in mind, the 1-year renal graft survival was 94%, acc ording the latest TND report from 2019 (7); survival was 96% for living-donor renal transplants and 86% for deceased-donor renal transplants (Table 1). Of all of the renal transplants in 2019, only 805 (21%) were from deceased donors, whereas the remaining 3053 (79%) were from living donors; the majority (63%) of the living donations were from relatives, and 22% were from unrelated donors (7). The distribution of living- and deceased-donor renal transplants for the last two decades is shown in Figure 2. Deceased-donor rates decreased further in 2020 due to the coronavirus disease 2019 pandemic and increased rates of organ discard.

Donor exchange is legally allowed in Turkey, but a national, paired exchange program is still under preparation and is not active as of 2021. Individual kidney exchange is possible between families and is facilitated within each individual transplant program. The rate of paired exchange in 2019 was 6%, which was similar to that in 2018 (7).

TIREX-KUIS AI Çapraz Böbrek Nakil Yazılımı

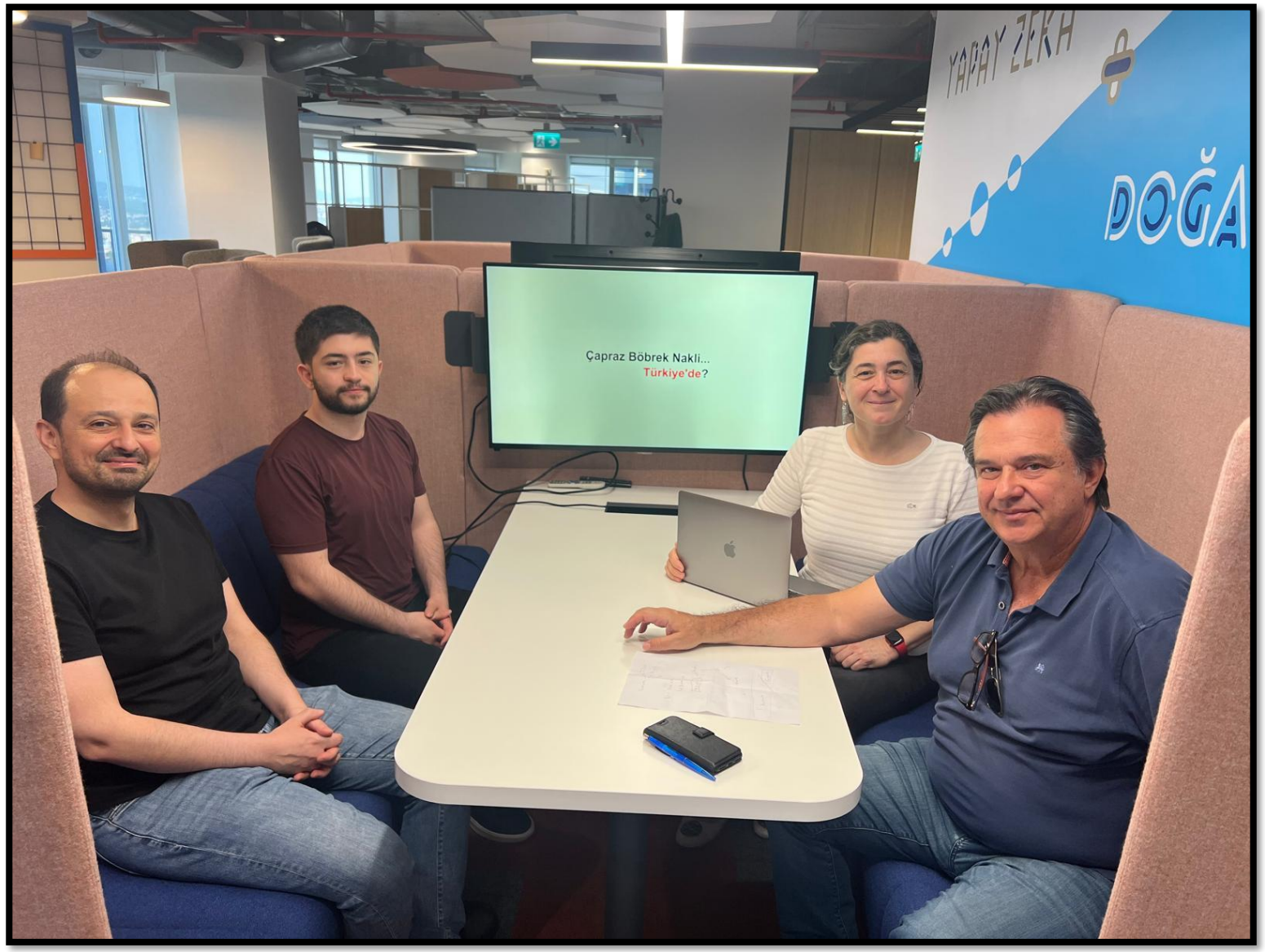
Yazılım Geliştirilmesi

2022 –

Programın Validasyonu ve Pilot Uygulama

Ülke Geneli Uygulama

TIREX-KUIS AI Çapraz Böbrek Nakil Yazılımı Ekibi



Kriterlerin Tespiti

- Literatürdeki makaleler
- Ticari olarak satılan uygulamalardan
- Ülkemize özgü kısıtlılıklar için nakil cerrahı, immünologlardan, nefrologlarla görüşme

Dahil Etme Kriterleri

- Alıcı ve donör arasında major ABO uyumsuzluğu
- Kompleman bağımlı sitotoksisite cross-match pozitifliği
- Desensitize edilememiş yüksek immünolojik riskli alıcılar
- Uygun çiftler

Eşleme Kriterleri

- Alıcı ve donör kan grubu uyumu (Zorunlu)
- DSA varlığı (Zorunlu) (<1.000, 1.000-5.000, 5.000-10.000, >10.000 MFI)
- HLA-ABDRB1DQB1 mismatch sayısı (Opsiyonel)
- Ek parametreler (Donör eGFR, yaş, cinsiyet, sigara… vs) (Opsiyonel)

Alıcı ve Donör Parametreleri

Alıcı ile İlgili

- Yaş
- Cinsiyet
- Kan grubu
- Vücut kitle indeksi
- Diyaliz süresi
- Ek hastalık varlığı (Hipertansiyon, diabetes mellitus, malignite)
- İmmünolojik risk
- Referans laboratuvarda HLA tayini (Yüksek çözünürlüklü - 11 lokus yeni nesil dizileme)
- Referans laboratuvarda ölçülmüş anti-HLA antikor varlığı (Tek antijenli boncuk yöntemiyle MFI ölçümü, bead yüzdesi), HLA Eplet uyumsuzluğu

Donör ile İlgili

- Yaş
- Cinsiyet
- Kan grubu
- Vücut kitle indeksi
- Sigara kullanımı
- Ek hastalık varlığı (Hipertansiyon, diabetes mellitus)
- Kreatinin klirensi
- Referans laboratuvarda HLA tayini (Yüksek çözünürlüklü - 11 lokus yeni nesil dizileme)

Çapraz Böbrek Nakil Yazılımı Pilot Uygulaması

Yazılım Geliştirilmesi

2022 –

Programın Validasyonu ve Pilot Uygulama

2025 –

Ülke Geneli Uygulama

TND TRANSPLANTASYON ÇALIŞMA GRUBU

Başkan: Ülkem Çakır

Sekreter: Hamad Dheir

Yürütme Kurulu: Aydın Türkmen, Hüseyin Koçak, Berna Yelken

Çapraz Böbrek Nakil Yazılımının Ülkemizde Uygulanması

Yazılım Geliştirilmesi

2022 –

Programın Validasyonu ve Pilot Uygulama

2025 –

Ülke Geneli Uygulama

TND TRANSPLANTASYON ÇALIŞMA GRUBU
Başkan: Ülkem Çakır
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Ülkemize Özgü Zorluklar ve Öneriler

İmmünolojik testler	Merkezi bir laboratuvar
Donörler/çiftlerin transferi	Sağlık Bakanlığı
Programın koordinasyonu ve finansmanı	Sağlık Bakanlığı
Donörlere ilave avantajlar	Sağlık Bakanlığı
Hakkaniyet ve güvenilirlik	Sağlık Bakanlığı

Teşekkür ederim