

Home Hemodialysis

Dr. Reem Ali Asad

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**ORGAN TRANSPLANTATION
& NEPHROLOGY CONGRESS**

إنجاز طبي كويتي برنامج زراعة الكلى في دولة الكويت يسجل إنجازاً بإجراء

149 عملية ناجحة في عام 2024

معلومات عن البرنامج:

- استحداث قسم زراعة الأعضاء في مستشفى جابر في مارس 2024.
- تمكن الطاقم الطبي من إجراء عمليات زراعة ناجحة لحالات معقدة.
- إطلاق البرنامج الوطني لزراعة الكلى بالتبادل بين الأسر في سبتمبر 2024.
- نجاح البرنامج أدى إلى زيادة عدد حالات الزراعة.

هدف البرنامج:

- تحسين فرص المرضى لزراعة الكلى من المتبرعين وتعزيز فرص نجاح العمليات.



الوطن
DIGITAL

بالتزامن مع انطلاق البرنامج الوطني لزراعة الكلى بالتبادل بين الأسر

الصحة: نجاح أول عملية تبادل لزراعة الكلى في مستشفى جابر



- تعد حلاً للمرضى الذين لديهم متبرع من أقاربهم غير متطابق مناعياً أو بفصيلة الدم
- يتم تبادل المتبرعين بين أسرتين مما يسمح بزراعة ناجحة لكل مريض
- البرنامج يعزز فرص المرضى ويساهم في تقليل فترات الانتظار وزيادة فرص النجاح



اللهم
أرحم من هم في ودائعك
وبرد عليهم قبورهم
واجعل الجنة داراً لهم

ALWATAN
الوطن

Menu icon

Bahrain - محليات

سمية الغريب.. بحرينية
ستبقى في الذاكرة



Nephrology Unit - Adan Hospital

@nephrologyunit-adanhospita7954

12.3K subscribers • 160 videos

The aim of the channel is to present the curriculum of nephrology in a simple, organized, updated and practical way to help ou ...more

 **Subscribed** 

Home Videos Playlists



CORE CURRICULUM IN NEPHROLOGY



Dr/Ossama Elkholy
Dr/Bassam Alhelal



HD (1): Hemodialysis Introduction Part1

Hemodialysis (HD)



by Nephrology Unit - Adan Hospital

Playlist • 15 videos • 47,755 views

Disclosure

No affiliation with companies providing NAHHD

Some Slides were Provided by Alradwan Company –Special Thanks to Dr.

Consensus.AI was used to answer some questions

Overview

Historical context

Types of Home Hemodialysis

Patient selection Criteria

Nocturnal Home Hemodialysis

In-Center Nocturnal Hemodialysis

Nurse Assisted Home hemodialysis

Conclusions and take Home Messages

Historical Context

Dr. Scribner faced with the limited In-center dialysis spots. Doing home dialysis was a way to offer more patients the treatments they needed.

Highly prevalent in the U.S. in the 60's, 70's

Global Adaptation following adaptation by Medical teams in Boston and in London. Leading to its spread in Europe.



Medicare coverage favored in-center dialysis. Emerging of Peritoneal Dialysis and Renal Transplant.

Resurgence facilitated by technology innovations and patient needs.

AI-generated search using ChatGPTpro

Types of Home Hemodialysis

Nocturnal Home hemodialysis (NHD)

Short daily Home hemodialysis

Parameter	Short daily	Nocturnal
Treatments per week	5-6	5-6
Time, h	2-3	6-8
Blood flow, mL/min	300-400	200-250
Dialysate flow, mL/min	500-800	300

Selfcare

Types of Home Hemodialysis

Nurse Assisted Frequent Home Hemodialysis

Typical HHD Prescription

- Duration 4X per week
- Time 4 hours
- Blood flow 300-400 mL/min
- Dialysate flow 100-200 mL/min

Parameter	Short daily	Nocturnal
Treatments per week	5-6	5-6
Time, h	2-3	6-8
Blood flow, mL/min	300-400	200-250
Dialysate flow, mL/min	500-800	300

Dr. Lutfi Abdullah Alkorbi – slides
King Faisal Specialist Hospital

AJKD CoreCurriculum Home Hemodialysis 2021
Scott D. Bieber, DO and Bessie A. Young, MD,
MPH

Patient Criteria

NHD SDD	NAHH (GCC)
1-Willingness and Ability for Self-Care 2-Hemodynamic stability 3-Sufficient physical and cognitive ability 4-Motivated and compliant. Strong social support 5-Strong social support	1-Bed Bound /limited mobility 2-Morbidly Obese 3-Submental normality 4-Psychiatric disorder 5-Viral infection -COVID19 6- Fractures

Technology

QUANTA 

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Maintainability.
Trainability.
Quantability.**



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 NATIONAL KIDNEY FOUNDATION | 



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Nocturnal Hemodialysis



is no need for phosphate binders. Often, people can stop taking many of their blood pressure medications and other medications that people on 3x a week hemodialysis or peritoneal dialysis have to take.

No More Dialysis "Crashes"

Because of the long, gentle dialysis, people do not get the "crashes" that they sometimes get on hemodialysis (blood pressure drop, vomiting, passing out). That makes it very safe to dialyze at home, even if there is no one else in your house or apartment.



Fluid is removed very slowly and gently, so it is much easier on the heart and body. As well, other symptoms usually disappear, like thirst, dizziness, headache, cramps and fatigue.

Nocturnal Hemodialysis

Nocturnal Hemodialysis is a novel way of doing hemodialysis, where you dialyze at home at night, up to 5-6 nights a week while you are sleeping.

It was developed right here in Toronto by Dr. R. Uldall, and now is being used all over the world. Dr. Christopher Chan is the Medical Director of our program at the University Health Network.

The More the Better

Remember that your kidneys normally worked 24 hours a day, so really you should have dialysis 24 hours a day, but that is not practical. What we do know is that the longer people dialyze, the better they feel. We also now know from our experience with Nocturnal dialysis that there are many, many benefits such as:

- improved heart function,
- improved energy,
- improved appetite,
- improved sexual drive.

Nocturnal Hemodialysis

Learn to let Dialysis fit your Life



DIVISION OF NEPHROLOGY



Toronto General Hospital

University Health Network

No More Diet Restrictions



Amazing as it sounds, with Nocturnal dialysis there are virtually no more restricted or "forbidden" foods – oranges, bananas, milk, chocolate cheese etc. are all allowed again.

No More Fluid Restrictions



If you dialyze 5-6 nights a week with Nocturnal, there is usually no need for any fluid restrictions.

Fewer Medications



Nocturnal dialysis gets rid of phosphate really efficiently, so there

Nocturnal Hemodialysis – Benefits

- **Improved Quality of Life**

- **Clinical Outcomes:**

- improved blood pressure control
- reduced need for phosphate binders
- better management of mineral metabolism.
- fewer cardiovascular issues, such as left ventricular hypertrophy,

Cardiovascular Benefits: including better blood pressure regulation, regression of left ventricular hypertrophy, and improved heart function. `due to better fluid volume control and reduced cardiovascular stress

- **Nutritional and Lifestyle Flexibility:** liberal diet ,increased protein and phosphate intake without adverse effects.

Sharing a Previous Dialysis Patient
Story
please don't take a picture or a
video





Special Thanks to Mrs. Mary and Mr. Phillip Varughese

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Nocturnal Hemodialysis – Challenges

- 1-Cost
- 2-Lack of motivation for self care/depression
- 3-Fear of being alone
- 4- Peer Support in the dialysis unit
- 5-Machine and Procedural Complications
- 6- Small number of candidates.
- 7- Machine and Procedural Complications
- 8-Lack of a policy

LOCAL EXPERIENCE



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1

Daily on line haemodiafiltration promotes catch-up growth in children on chronic dialysis.

Daily on-line haemodiafiltration promotes catch-up growth in children on chronic dialysis, potentially allowing them to reach their mid-parental target height in the future.



Population

Children on chronic dialysis receiving rhGH treatment



Sample size

15



Methods

Observational prospective non-randomized study.



Outcomes

Growth velocity



Results

Daily OL-HDF increased growth velocity from 3.8 cm/year to 14.3 cm/year in children on dialysis.

Extracted [5/7 study attributes](#)



Non-RCT



Highly Cited

Daily on line haemodiafiltration promotes catch-up growth in children on chronic dialysis.

Published Mar 1, 2010 · M. Fischbach, J. Terzic, S. Menouer [+3 more](#)

Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association

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5

Growth of children with end-stage renal disease undergoing daily hemodialysis

Daily hemodialysis improves height growth in a third of children with end-stage renal disease without growth hormone treatment, and should be considered as a treatment option for selected cases.



 Population	Children with ESRD on daily or conventional hemodialysis
 Methods	Prospective observational study
 Outcomes	Height gain in children with end-stage renal disease.
 Results	Daily hemodialysis improved height gain in 33% of patients compared to 8% with conventional hemodialysis.

Growth of children with end-stage renal disease undergoing daily hemodialysis

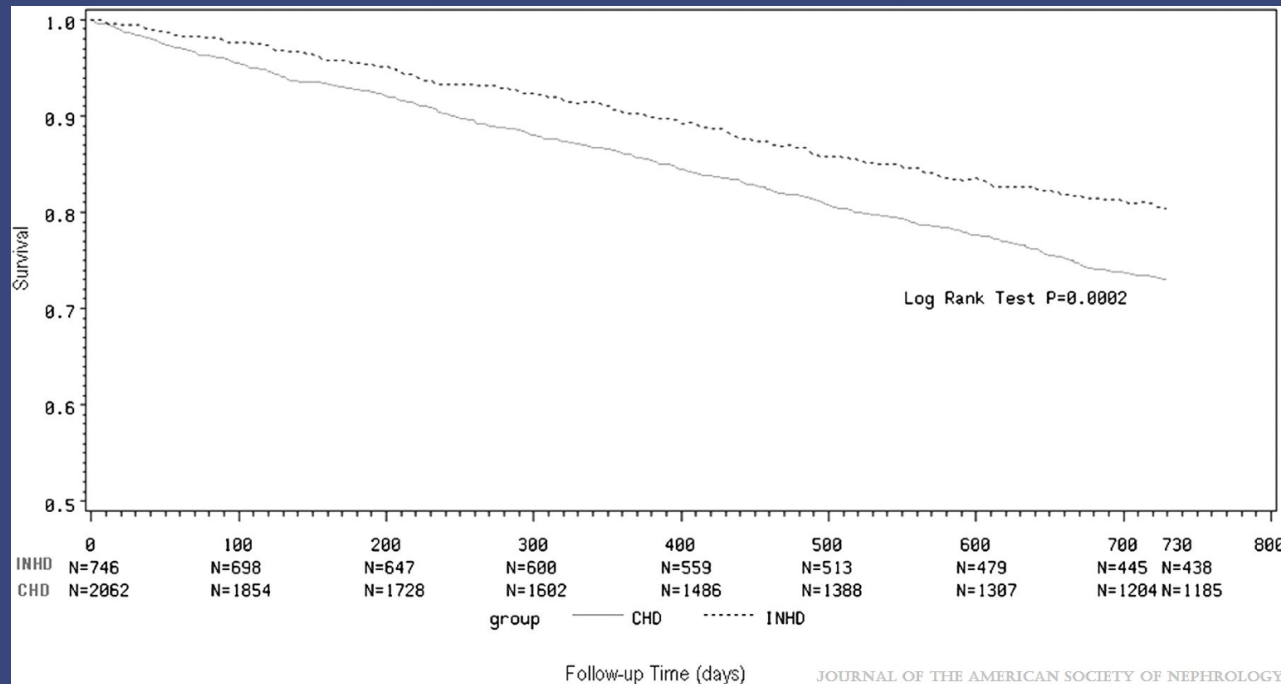
Published Mar 1, 2014 · M. F. Camargo, C. Henriques, Simone Vieira [+3 more](#)

Pediatric Nephrology

In-Center Nocturnal Hemodialysis

[Survival with Three-Times Weekly In-Center Nocturnal Versus Conventional Hemodialysis](#)

Lacson, Eduardo Jr. et al
Journal of the American Society of Nephrology 23(4):687-695, April 2012.
doi: 10.1681/ASN.2011070674



Comparing Home Dialysis Modalities

1.DHD vs. PD:

- 1. Hospitalization Rates:** DHD patients experienced significantly fewer hospital admissions compared to PD patients, with rates of 0.93 vs. 1.35 per patient-year, respectively.
- 2. Hospital Days:** DHD patients spent fewer days in the hospital than PD patients, averaging 5.2 vs. 9.2 days per patient-year.
- 3. Admission-Free Patients:** A higher percentage of DHD patients remained free from hospital admissions compared to PD patients (52% vs. 32%).
- 4 Modality Failure:** PD patients had a higher rate of switching back to in-center hemodialysis compared to DHD patients (44% vs. 15%)

The risk of hospitalization and modality failure with home dialysis

Rita S. Suri, Lihua Li, Gihad E. Nesrallah

Kidney International Volume 88 Issue 2 Pages 360-368 (August 2015)

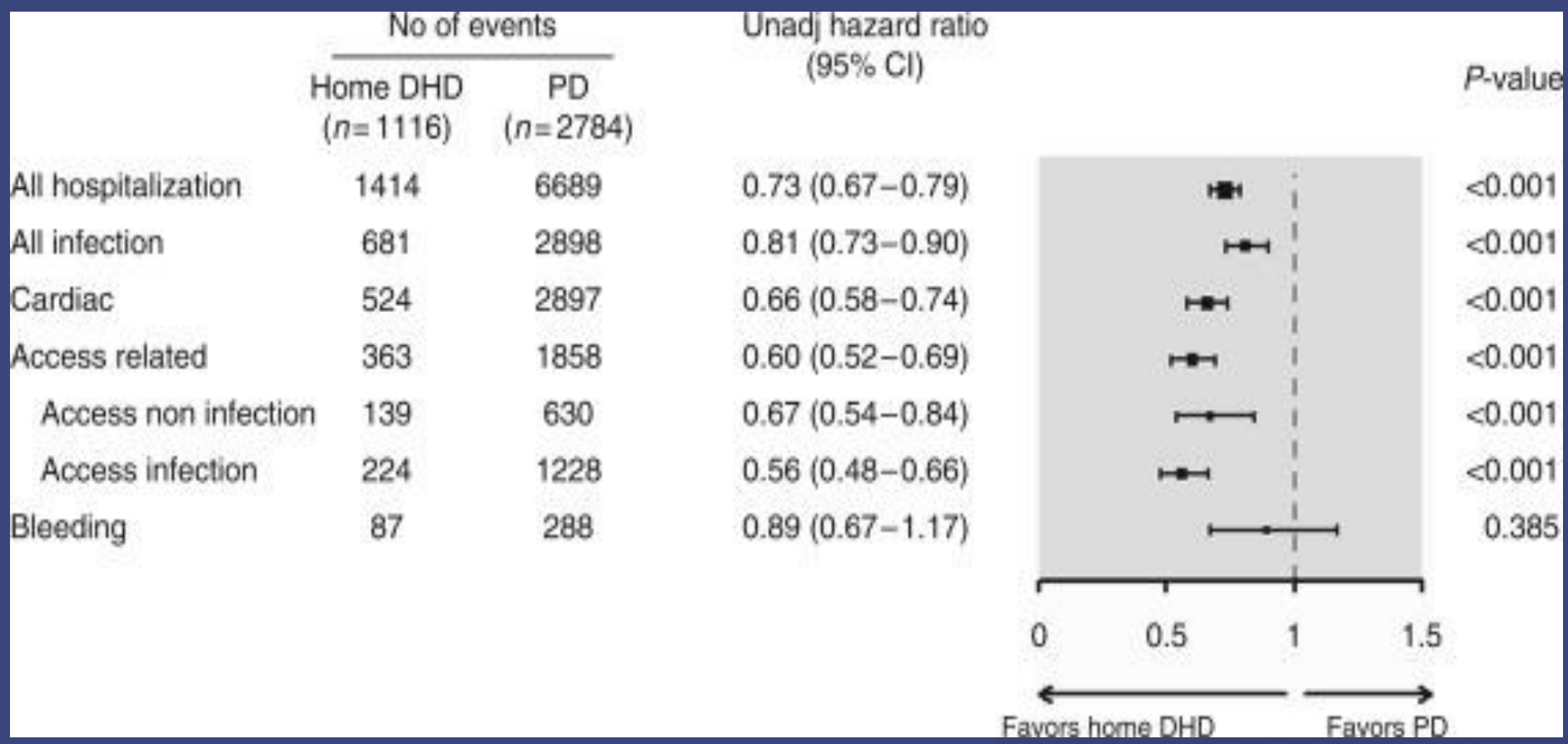
DOI: 10.1038/ki.2015.68

-1116 daily home hemodialysis (DHD) patients by propensity scores to 2784 contemporaneous USRDS patients receiving home peritoneal dialysis (PD).

-1187 DHD patients matched to 3173 USRDS patients receiving in-center conventional hemodialysis (CHD).

The risk of hospitalization and modality failure with home dialysis

Rita S. Suri, Lihua Li, Gihad E. Nesrallah



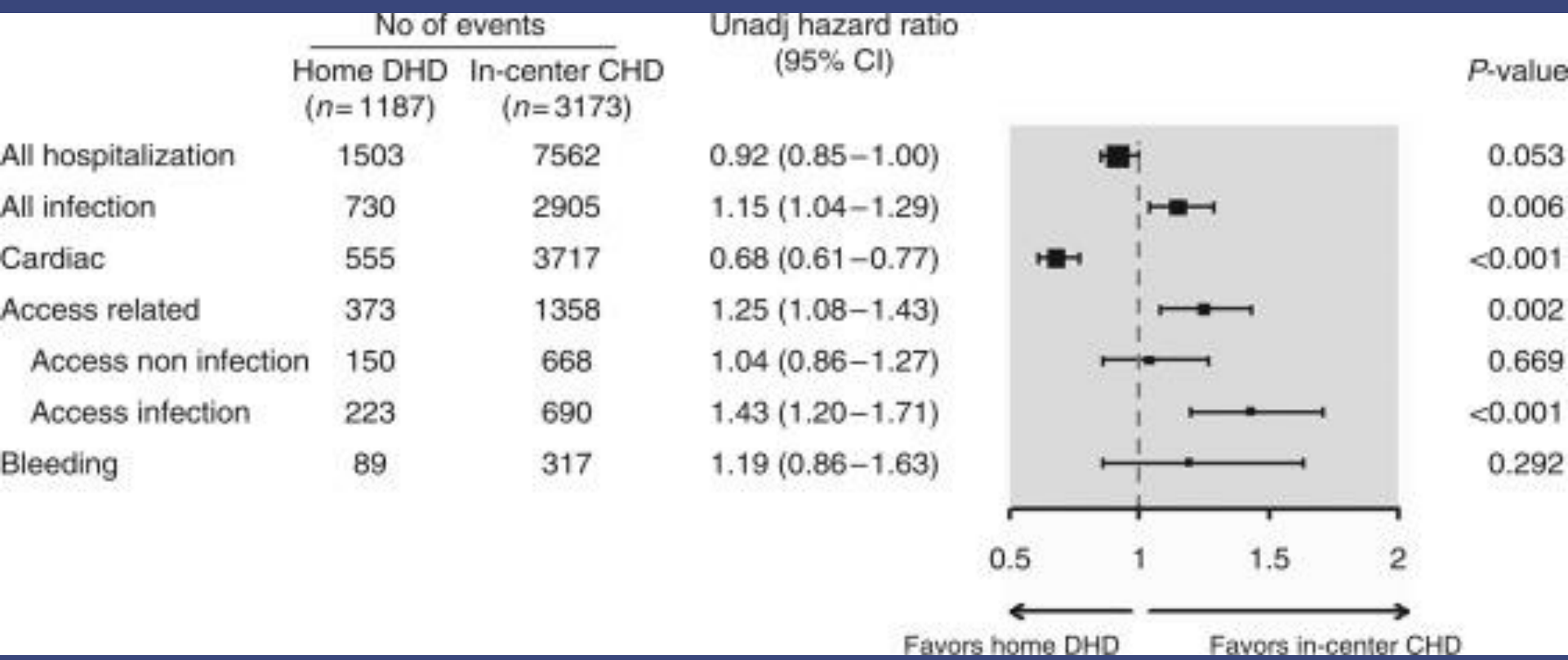
DHD vs CHD

1.DHD vs. CHD:

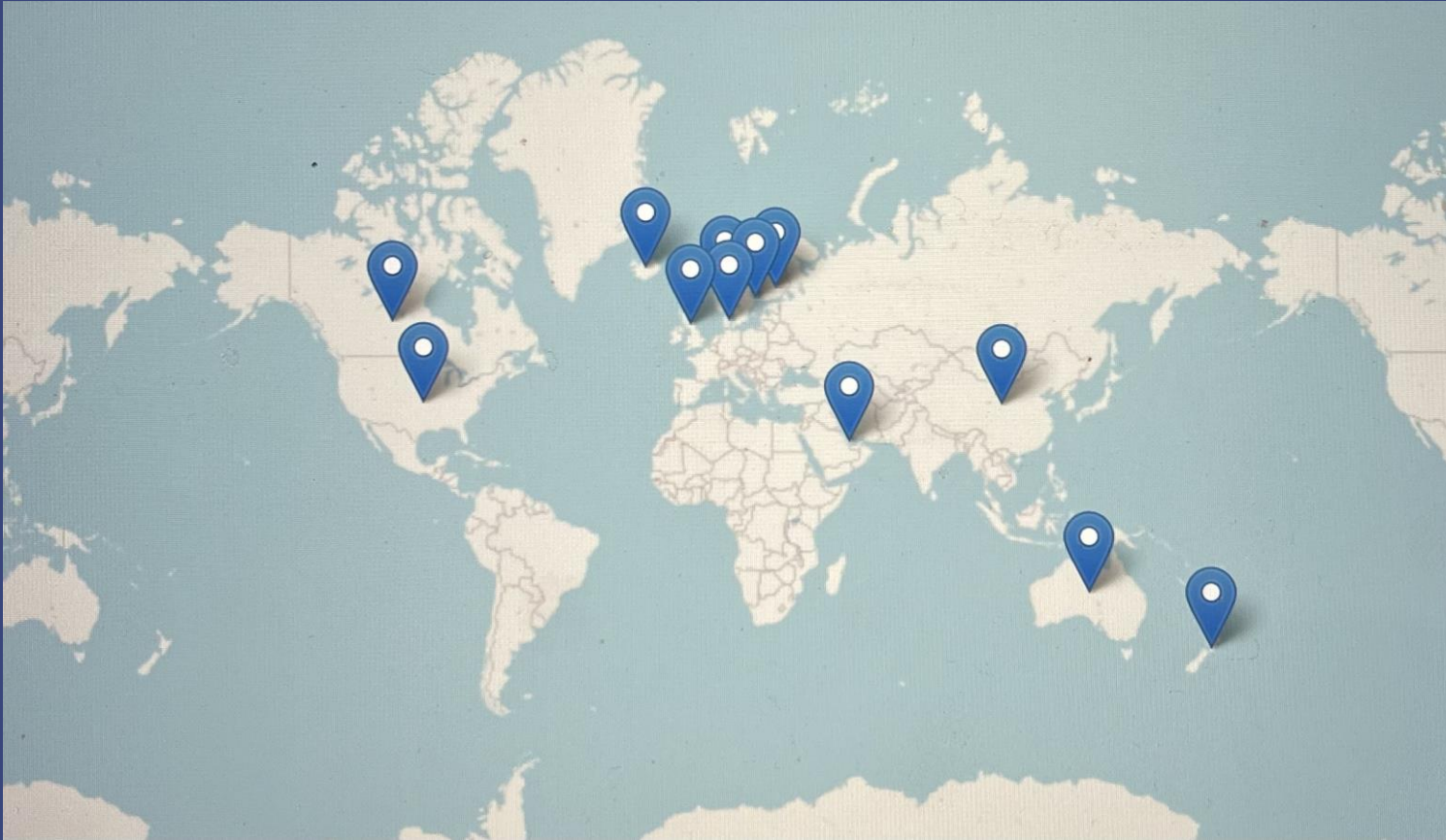
1. **Hospitalization Rates:** There was no significant difference in overall hospitalization rates between DHD and CHD patients (0.93 vs. 1.10 per patient-year).
2. **Cardiovascular Hospitalizations:** DHD patients had lower rates of cardiovascular-related hospitalizations compared to CHD patients.
3. **Infectious and Access-Related Hospitalizations:** DHD patients had higher rates of hospitalizations due to infections and access-related issues compared to CHD

The risk of hospitalization and modality failure with home dialysis

Rita S. Suri, Lihua Li, Gihad E. Nesrallah



NAHHD



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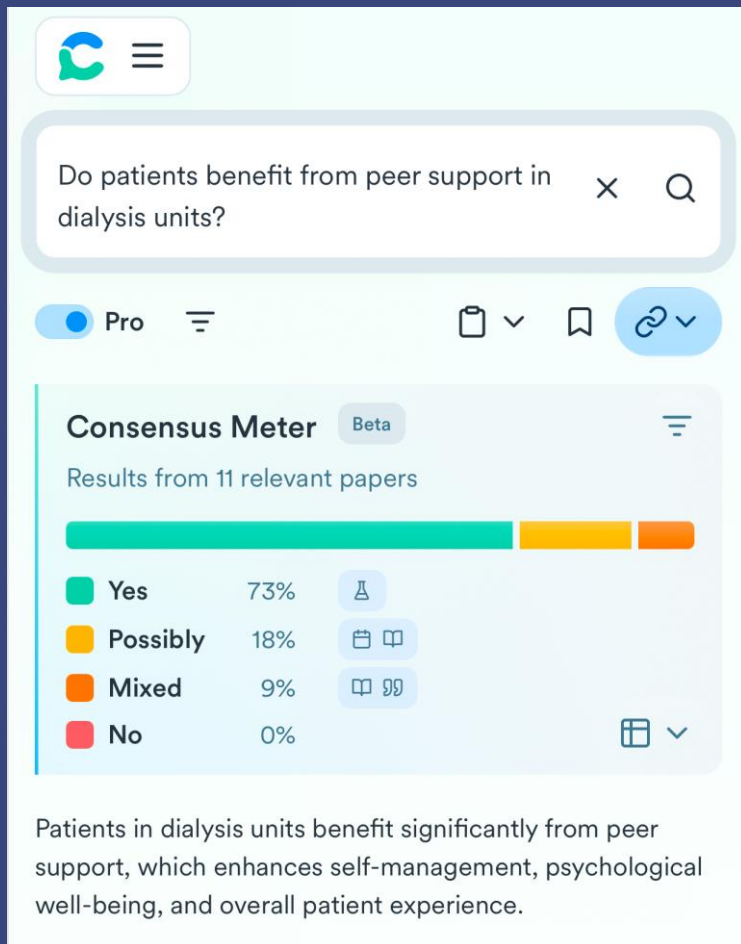
Home Hemodialysis and the Elderly

Hemodialysis Induces an Acute Decline in Cerebral Blood Flow in Elderly Patients.

Published Apr 1, 2018 · H. Polinder-Bos, D. V. García, J. Kuipers [+13 more](#)

Journal of the American Society of
Nephrology : JASN

Home Hemodialysis and the Elderly



Consensus.AI

NAHHD

#926 Qatar's Assisted Home Hemodialysis Program (AHHD): a new challenge to reach better outcomes for elderly patients

Published May 1, 2024 · M. Elshirbeny, M. Y. Mohamed, Abdullah Hamad, Mossab Filali, Teha Almohanadi, Hoda Tolba, Shajahan Joseph, Sandhya Chembolu, Mohamad M. Alkadi, Hassan Almalki

Nephrology Dialysis Transplantation

Cost reduction secondary to decreased ambulance use

Comparison between Nurse Assisted Home Hemodialysis (NAHHD), and in Center Hemodialysis (CHD), in Home-bound, Multi-comorbid and Debilitated Hemodialysis Patients

Bassam Bernieh MD, Satarupa Gogoi M.Tech, Ahmed Ewaida MD, Mohamed Yassin Galal MD, Adham S. Eddin MD, Hilal Al Rasbi CRN, Ghazal Chredi CD, Bienmelyn L. H CRN, Teena Ramos CRN, William Prinsloo MBA, and Yousef Al Redwan MBA - *HHD Home Health Care for Home Hemodialysis – Abu Dhabi, UAE*

Background:

Home hemodialysis (HHD) is a renal replacement modality used to treat active, autonomous, and relatively, healthy dialysis patients. The steady increase in the number of dialysis patients, with multi comorbidities, debilitated, bed and home bound is creating a significant burden on the active hospital beds, and on the outpatient dialysis units. The clinical and biological outcome, of treating those highly comorbid and disabled dialysis patients, with nurse assisted home hemodialysis (NAHHD), at home compared to in-center HD is unknown. We are reporting the results of one year on NAHHD, compared to one year in CHD.

Method:

The data of nineteen patients, treated in center hemodialysis (CHD) for average period of 12 months (4-14), was compared retrospectively, to average period of 12 months (4-25), on (NAHHD) for the same set of patients. All patients were dialyzed by Fresenius 5008 machine in center and by NxStage System One Cycler at home. Reasons for shifting patients to NAHHD program were: bed confinement/ wheelchair dependent/ limited mobility in 12 (63%), morbid obesity in 3 (16%), psychiatric disorder/ mental retardation in 3 (16%), and others 1(5%).

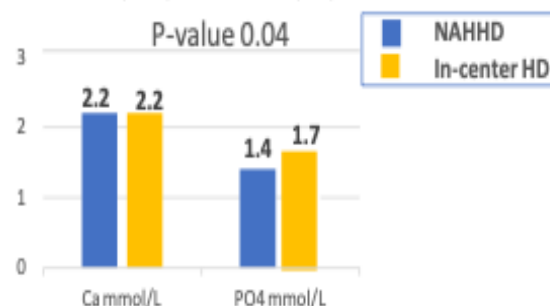
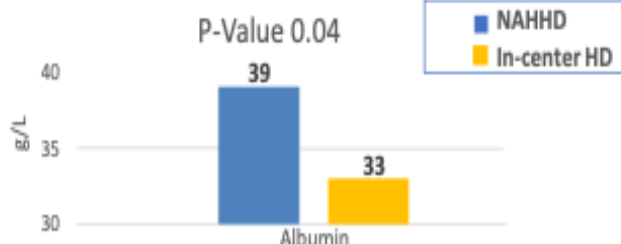


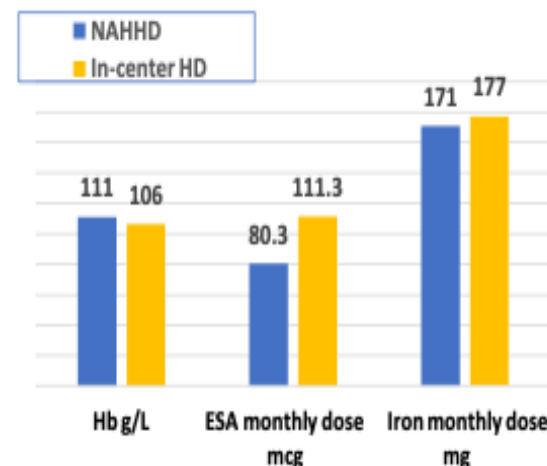
Table 1: Average Comparison of clinical and biological parameters in 19 patients- (S: Significant; NS: Non significant)

Parameter	NAHHD	In-center HD	P-Value	Decision
Albumin g/L	39	33	0.04	S
Ca mmol/L	2.2	2.2	0.14	NS
PO4 mmol/L	1.4	1.7	0.04	S
PTH pg/mL	331	594	0	S
Hb g/L	111	106	0.03	S
ESA monthly dose mcg	80.3	111.3	0.003	S
Iron monthly dose mg	171	177	0.04	S
Std Kt/V	2.21	2.16	0.12	NS
UF Wt. Gain (L)	1.8	2.2	0.01	S
Dialysate volume L/session	26	120	0	S
Dialysis Frequency (sessions/week)	4	3	0.04	S
Dialysis Time (minutes/session)	216	230	0.04	S



Result:

The mean age of the patients was 69.33 ± 12.08 (42-90) years. Etiology of ESKD was DM in 15(79%), HTN in 3(16%) and others in 1(5%). The average number of comorbidities was 9.6 ± 3.07 (6-16). Vascular Access type: AVF in 9(48%), AVG in 1(5%), PC in 7(37%), and AVG/PC/AVF in 2(10%). The comparisons between the results while in CHD and during NAHHD are illustrated in the **Table 1**,



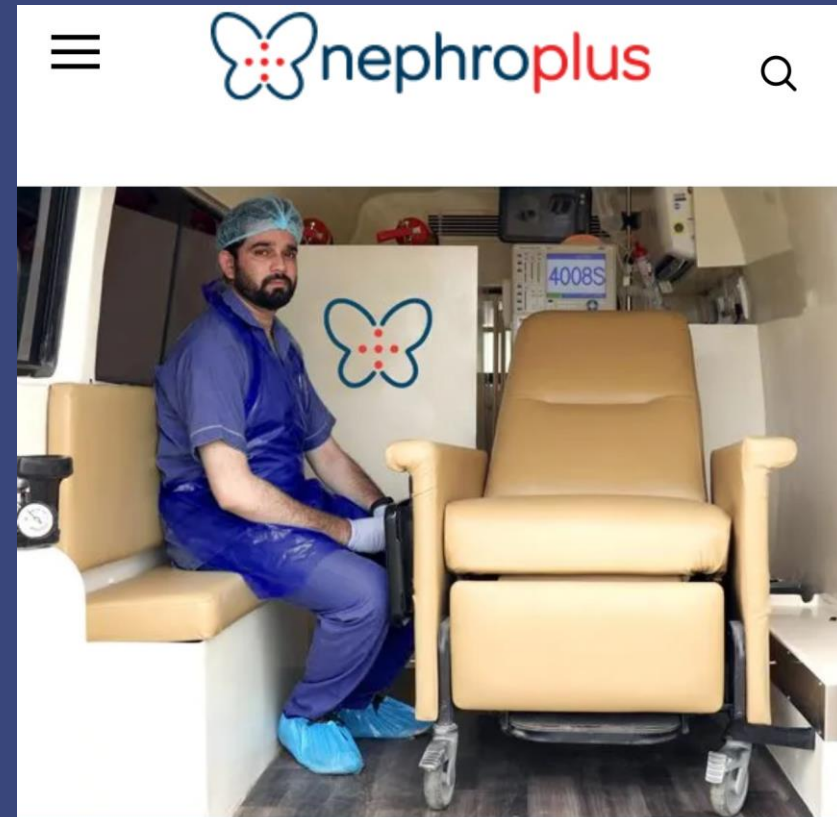
Conclusion:

In home-bound, multi-comorbid, and debilitated hemodialysis patients; NAHHD by using NxStage System One cycler, is safe, efficient, with better clinical and biological outcome, compared to in-center HD.



Patient benefit.
Patient versus family wishes.
Long term treatment goals.
Cost effectiveness
Sustainable treatment.

Options



Safety and Comfort

Designed by industry experts, the ambulance has a fully operational dialysis setup with well-trained and highly qualified dialysis technicians. Dialysis on Wheels comes with all the essential equipment including a dialysis machine, RO plant, recliner or bed, and a well-trained nurse or dialysis technician. The therapies and facilities provided in the specially designed ambulance are equivalent to the ones available in-clinic or hospital.

In-Clinic Facilities On Wheels

Your essential dialysis treatment right outside your home or workplace or your choice of location

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Conclusion and Take Home Messages

Home Hemodialysis includes NHD, SDH and NAHHD. They are not the same.

Home Dialysis prescription needs to meet the patient's current needs and future treatment goals.

Convenience may not necessarily translate into health benefit.

Some Patients who fail PD may benefit from transitioning to home hemodialysis, where available .

A Successful HHD program requires a strong infrastructure and needs to be sustainable.

Conclusion and Take Home Messages

More Intensified home dialysis modalities as NHD and SSD may benefit special populations as pregnant women or active adolescents who are unable to get a transplant.

Patients who are waiting for a second transplant after a failed first one, may benefit from intensified home dialysis modalities as SDD or NHD.

NHHD maybe useful when commuting to a dialysis center is difficult.

Benefit of long term NHHD (frequent)is yet to be determined.
Promising preliminary results.

Thank you !