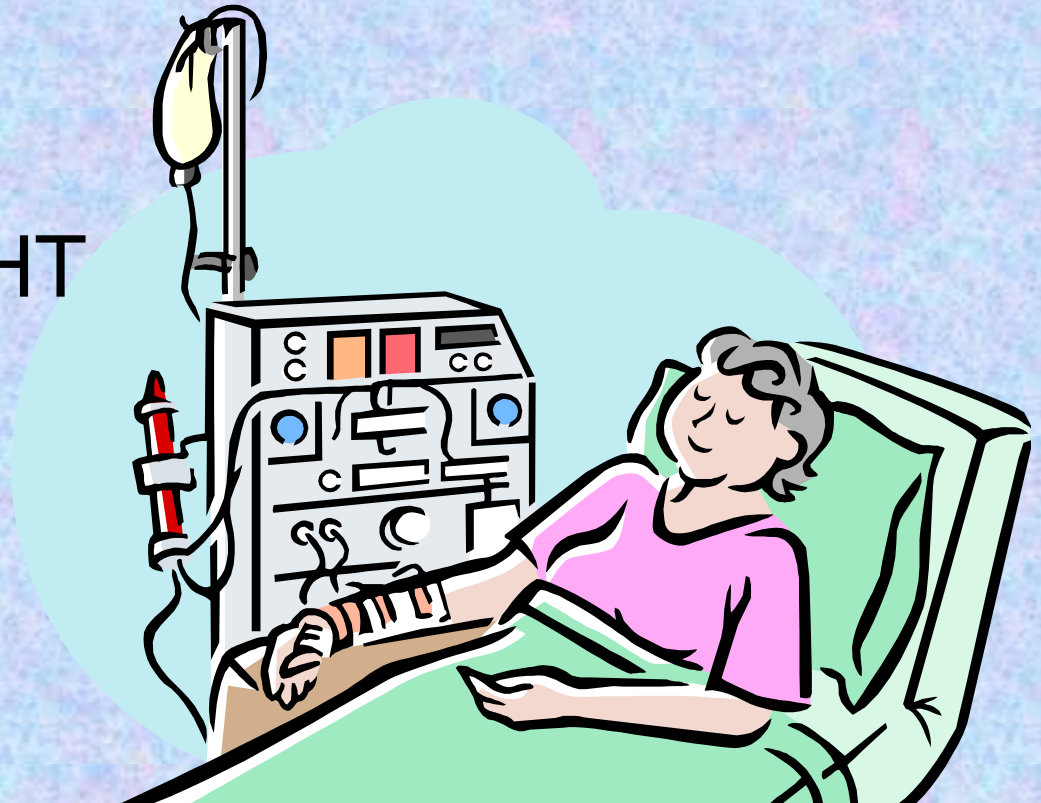


NOCTURNAL HEMODIALYSIS

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XCD Management



FINANCIAL DISCLOSURES



Employee of XCD Management
(Formerly North Central Pennsylvania Dialysis Clinics)

NOCTURNAL HEMODIALYSIS



- Explain differences between conventional hemodialysis and nocturnal hemodialysis
- Explain the pros and cons of the program both to the patient and to the unit
- NCPDC's program with case studies

CONVENTIONAL HEMODIALYSIS

- Three times a week
- Three to five hour treatments
- Blood pump speeds 350-500 ml/min
- Dialysate flow rate 600-800 ml/min
- Heparin bolus/maintenance
- UF/Na⁺ profiling

NOCTURNAL HEMODIALYSIS

- Three times a week
- 8:00 treatments
- Blood pump speeds 300 ml/min
- Dialysate flow rate 500 ml/min
- Heparin bolus/maintenance
- UF/Na⁺ profiling

NOCTURNAL HEMODIALYSIS

Pros

- More gentle to the vascular system
- More effective dialysis with better clearances as shown by Kt/V and URR
- Less “recovery time”
- Fewer medications needed
- Fewer work interruptions
- More time with family during waking hours
- More availability for patients that need a schedule change or extra dialysis

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Cons

- Patients are away from home all night
- Some struggle to get comfortable
- Some find sleeping difficult
- Transportation can be an issue
- Limited support staff
- Reverse Osmosis (RO) system
- Staffing issues

NOCTURNAL HEMODIALYSIS

NCPDC's Program

- Began January 2011
- Eight patients
- Local shared ride program (STEP) provided 24/7 service
- One nurse, one technician staffing nightly
- Weekly visits by nephrologists
- Monthly visits by dietitian and social worker

NOCTURNAL HEMODIALYSIS

NCPDC's Program

- Conventional Dialysis
 - M/W/F 6:00A – 9:00P (three shifts)
 - T/Th/Sa 6:00A – 4:00P (two shifts)
- Nocturnal Dialysis
 - Su/Tu/Th 8:00P – 4:00A (one shift)

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So, what about the RO backwashing?



NOCTURNAL HEMODIALYSIS

So, what about the RO backwashing?



NOCTURNAL HEMODIALYSIS

Criteria for Selection

- Patient choice
- Stable conventional hemodialysis treatments
- Attendance record
- Access considerations
- Hepatitis B status



NOCTURNAL HEMODIALYSIS

Patient A

- Female in her mid 60's
- Does not work outside the home
- Legally blind
- Uses local shared ride program (STEP)
- Started dialysis 02/10 and then transferred to our facility the next month
- Access – Mature fistula
- 4:00 / 600 DFR / Fresenius 160

NOCTURNAL HEMODIALYSIS

Patient A

Timeline	URR	Kt/V	K	P
Last CH 04/11	86.0	2.24	4.0	4.5
Last NOC 12/11	90.7	2.43	4.0	4.5
CH 01/14	86.6	2.26	4.4	6.0

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Patient A

- Left nocturnal dialysis shift when local shared ride program reduced their hours
- Stable on conventional hemodialysis
- Would go back to nocturnal if it were offered again and she could arrange transportation
- 4:00 / 600 DFR / Fresenius 160

NOCTURNAL HEMODIALYSIS

Patient B

- Male in his mid 50's
- Works full-time
- Cardiac patient
- Not very diet/fluid compliant
- New start to hemodialysis 03/07
- Access – mature fistula
- 4:00 / 800 DFR / Fresenius 200

NOCTURNAL HEMODIALYSIS

Patient B

Timeline	URR	Kt/V	K	P
Last CH 01/11	72.7	2.09	6.0	4.5
Last NOC 03/13	79.0	2.13	5.1	4.4
CH 10/13	71.0	1.56	5.4	5.1

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Patient B

- Went back to conventional hemodialysis when nocturnal dialysis closed
- Did okay, but would have gone back to nocturnal
- Continued to work fulltime
- Heart function declined
- 4:30 / 800 DFR / Fresenius 200

NOCTURNAL HEMODIALYSIS



Patient B

BORN

03/27/59

DIED

10/16/13

NOCTURNAL HEMODIALYSIS

Patient C

- Male in his mid 50's
- “Retired” contractor (not on disability), but active around the house and with family
- Bradycardic needing pacemaker
- Began on an IJ, went to a fistula
- 4:00 / DFR 600 / Fresenius 180

NOCTURNAL HEMODIALYSIS

Patient C

Timeline	URR	Kt/V	K	P
Last CH 08/11	65.8	1.43	4.0	4.2
Last NOC 03/13	85.0	2.51	4.3	3.6
Last CH 08/13	70.0	1.39	3.9	4.8

NOCTURNAL HEMODIALYSIS

Patient C

- Went to conventional hemodialysis when nocturnal dialysis closed
- Very difficult adjustment
- Access issues
- Struggled on conventional hemodialysis and went to peritoneal dialysis

NOCTURNAL HEMODIALYSIS

Patient C

Timeline	URR	Kt/V	K	P
Last CH 08/11	65.8	1.43	4.0	4.2
Last NOC 03/13	85	2.51	4.2	4.2
Last CH 08/13	70.0	1.39	4.3	3.6
First PD	*	*	3.9	4.8

* Patient has not been on PD long enough to give those results

NOCTURNAL HEMODIALYSIS

Patient C

Timeline	Albumin
Last CH 08/13	4.3
First PD 09/13	4.4

NOCTURNAL HEMODIALYSIS

Patient C

Timeline	URR	Kt/V	K	P
Last CH 08/11	65.8	1.43	4.0	4.2
Last NOC 03/13	85	2.51	4.2	4.2
Last CH 08/13	70.0	1.39	4.3	3.6
First PD	Patient not on PD long enough to give these results		3.9	4.8
PD 12/13		1.98*	3.9	4.7

NOCTURNAL HEMODIALYSIS

Patient C

Timeline	Albumin
Last CH 08/13	4.3
First PD 09/13	4.4
03/14	3.7

NOCTURNAL HEMODIALYSIS

Patient C

- Thriving!
- Feels better than while on conventional hemodialysis
- Blood pressure and heart rate normalized
- Enthusiastically working part-time with son
- He has gone from CAPD to CCPD

NOCTURNAL HEMODIALYSIS

Patient D

- Female in her 60's
- Conventional hemodialysis patient who ran a nocturnal shift after skipping one of her treatments. She runs twice a week.
- CH – 3:00 / DFR 600 / Fresenius 160
- NOC – 8:00 / DFR 500 / Fresenius 160
- Clearances only

NOCTURNAL HEMODIALYSIS

Patient D

Timeline	Kt/V
CH 03/15/13	2.2
NOC 03/19/13	4.4

Puked her!



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NOCTURNAL HEMODIALYSIS

EPO Dosages

Identifier	December 2010	May 2011
Patient 1*	140K Units	177K Units
Patient 2	140K Units	110K Units
Patient 3	180K Units	80K Units
Patient 4	15K Units	4K Units
Patients 5/6	None	None

*HepB/HIV+

NOCTURNAL HEMODIALYSIS

PO₄ BINDERS

Most patients discontinued use of PO₄ binders within a month of starting on the nocturnal shift.



Conversely, all the patients were back on PO₄ binders when they transitioned to a conventional hemodialysis shift.

NOCTURNAL HEMODIALYSIS



Observations

- Patients did much better on nocturnal hemodialysis than on conventional hemodialysis in terms of bloodwork results and personal sense of well-being
- They looked healthier!
- They had a feeling of “community.”

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PEANUTS®



NOCTURNAL HEMODIALYSIS

So, why did the shift close?

- Census fell to an unsustainable level (five in March 2013)
 - Reductions in the local shared ride program
 - Conventional hemodialysis patients were not interested in growing the shift
 - The “Sequester”
- Staffing challenges
 - Holidays
 - Call-offs

NOCTURNAL HEMODIALYSIS



NOCTURNAL HEMODIALYSIS



Lori Mahaffey, RN, CNN

Gwen Petrella, RN

The staff at XCD Management

Patients A, B, C, D, 1,2,3,4,5,and 6

Luke and Judy Lunt

Last, but not least Christ Almighty