FLUID MANAGEMENT:
WHAT THE NEPHROLOGY TECHNICIAN CAN DO TO HELP?

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TODAY’S TALK

• What’s possible with Fluid Management Programs

• Why is a Fluid Initiative important

• How can a Nephrology Technician help lead this kind of patient improvement
OVERLOAD!
HOW TO LOSE A TON OF WEIGHT

971.3 kg
lost

501 Patients
CONFIRMED: DRY WEIGHT IS AN ESTIMATE

- Only 21% patients at Dry Weight
- 62% patients decreased weight
  Average kg/patient lost: 3.14 kg
- 17% patients increased weight
  Average kg/patient increase: 2.25 kg
PIONEER FOR IMPROVED PATIENT CARE

- Leader for Quality & Patient Satisfaction
- Driven by Research
- Utilized Best Practices
- Publications
- Posters
- Continuing Work
ASN 2015 Poster:

Reducing Rate of hypotensive events during dialysis while lowering DW

The rate of hypotension to 2%
CVINSIGHT® FRAMEWORK FOR DIALYSIS TOLERANCE

Type of Stress
- Pulse Rate
- Pulse Strength
- Pulse Irregularity
- SpO2 Variability
DR. DEOREO DEFINED STRESS LEVELS

Description of Stress (Event) Level

*Based on clinician-set parameters*

0 = No Stress
1 = Compensated Stress
2 = Tolerated Stress
3 = Early Decompensation
4 = Decompensation

* Defined parameters in the DeOreo Dialysis Intervention℠ Protocol
DEOREO DIALYSIS INTERVENTION\textsuperscript{SM} PROTOCOL

- Classic MD-defined interventions triggered by CVI alerts
- Leverage patient tolerance to increase UFR
- Small reactive steps taken to reduce dialysis stress

Protocol Based On Event Type & Event Level

<table>
<thead>
<tr>
<th>Event Level</th>
<th>Action Type</th>
<th>Event Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chair Position</td>
<td>UFR</td>
</tr>
<tr>
<td>0</td>
<td>Increase by 200</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Increase by 100</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Chair 3</td>
<td>No change</td>
</tr>
<tr>
<td>3</td>
<td>Chair 3</td>
<td>Decrease by 100</td>
</tr>
<tr>
<td>4</td>
<td>Chair 3</td>
<td>Decrease by 200</td>
</tr>
</tbody>
</table>

Note: If Temp stabilizes, ask for order change.
INTRODUCTION

The DeOreo prescription must always include appropriate timing for each fluid removal goal, suitable monitoring of fluid status, and regular assessment of the patient’s fluid management. The goal is to achieve a fluid balance that is consistent with the patient’s clinical condition and to prevent fluid overload.

METHODS

NANT 2016 Poster:

DeOreo Dry Weight Challenge Programs:

Monitored

Nonmonitored

Avg DW: 2.5Kg/patient
• Quick easy assess to make real time decisions
• Ease of Use
• Took away some of the guess work
• Incorporated within current workflow and practices
• Standardized practice
• Gave confidence with decision making
Identifying the value of managing fluid balance

RJ Picciano, BA

One goal of dialy In excess fluid to a target volume is an anti hypertensive strategy to reduce edema and fluid management. The dialysis exchange aims to achieve these goals:
- Appropriate fluid removal
- Avoid excess fluid
- Symptomatic hypotension
- Give fluid as needed

At the Centers (Cleveland), we manage excess fluid in the patient care area (daily) by using two methods to imple: Exceeds treatment goals

Method 1: Lower the blood flow rate

- Increase in ultrafiltration
- Alleviates fluid accumulation
- Reduces symptoms

Method 2: Use a fluid control system

- Decreases the fluid delivery
- Allows for better blood flow rate

The Dry weight challenge protocol (monitored)

The dry weight challenge protocol is used in conjunction with the dry weight challenge protocol (nonmonitored). The protocol allows for a new standard for fluid management and reduces complications.

Results

Patients in both the monitored and unmonitored group achieved significant weight loss on the protocol. Overall, the challenge patients on CVIT achieved average dry weight reduction of 2.4 kg. Nonmonitored patients achieved 2.2 kg of dry weight reduction. Both decreases were significant. The results were consistent across multiple facilities. We believe that the protocol is repeatable and could deliver similar achievements in other settings. Based on these results, CVIT intends to perform CVI mon weight monitoring twice a day and as needed on all patients. With CVI monitoring, we can observe individual responses to treatment changes.

Conclusions

Over hydration is associated with excess mortality and cardiovascular morbidity in CKD patients. Diabetic patients who are consistently over or under their "dry weight" have a higher hazard for death and hospitalizations. Over-hydration or under-hydration as the dominant definition of "adequacy" often leads to treatment times too short to avoid excessive ultrafiltration rates and intra-diastolic hypertension. There is no agreement on the best protocols or assistive devices to guide fluid removal during dialysis treatments. Hydration is a poor endpoint, may give the false impression that the patient is euvebic, and is associated with myocardial stunning. """"References""

ARE YOU UTILIZING BEST PRACTICES?

Evidenced Based Research
HOW IS DRY WEIGHT DETERMINED?

Dry Weight should be considered the post-dialysis weight that results in:

- Least intradialytic hypotension/symptoms
- Shortest post dialysis recovery time
- Fewest hospitalizations
- Fewest Cardiac/Neurological Events

HOW IS GOAL CALCULATED FOR TREATMENT?

How do you determine patient UF Goal?

Look at a series of treatments?

Ask how much they want off?

Standard Calculation:

\[
\text{Pre-weight} - \text{Dry Weight} + \text{Rinse back/prime}^* = \text{UF Goal}
\]

*Don’t forget to add additional fluids given during treatment (antibiotics/PO, flushes)
 HAVE STANDARDS FOR NOT EXCEEDING HIGH UF RATES?

**Ultrafiltration Rates:**

HEMO Study data: Data from 1846 patients

- Compared by UF rates:
  - up to 10 ml/h/kg
  - 10–13 ml/h/kg: Higher risk of CHF without increased risk of death
  - over 13 ml/h/kg: Increased risk of death

USING INTERVENTION WHICH OPTIMIZE FLUID REMOVAL

Interventions
Interventions:
- Chair Position
- Oxygen
- Dialysate Temperature

* Defined parameters in the DeOreo Dialysis Intervention℠ Protocol
CHAIR POSITION

Avoid Trendelenburg

Chair 3: Feet above hips

Adjustment of chair position

Similar result as seen with Saline Bolus
OXYGEN

Helps with disturbed breathing patterns:

**SpO2 variability**

Delivers more O2 to the heart & can help with cardiac irritability:

**Pulses Irregularities**

Addition of 3L O2
DIALYSATE TEMPERATURE

Improves cardiac contractility and increases venous tone.¹:

**Pulse Irregularities**

Causes peripheral vasoconstriction to improve BP
- Lowers the incidence of hypotension without reducing the adequacy of dialysis.²
- Helps in achieving higher ultrafiltration while maintaining hemodynamic stability during and after dialysis.³

**Pulse Strength**

Temp decreased to 35.5°C

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¹ Adapted from: [http://www.uninet.edu/cin2001-old/conf/schneditz/schneditz.html](http://www.uninet.edu/cin2001-old/conf/schneditz/schneditz.html)
WHAT CAN YOU DO?

Changing Practice
GET INVOLVED

Participate in committee meetings within your organization
  • Quality
  • Patient Education
  • Staff Education
  • Training

Memberships with professional organization: Both local and national
  • Boards, Committees, sub committees
ADVANCE YOUR KNOWLEDGE

• Certifications: promotes a high level of competency in the renal community
• Subscriptions to professional journals
• Conferences: Local, Regional & National
• Become a clinical expert or resource
• Become familiar with legislation in your state
OPPORTUNITIES

• Fluid Managers
• Technical Experts/Consultants
• Educators
• Professional Organizations boards/committee members
• Research
• Publications
QUESTIONS?