

Oral Fluid Enhancement Protocol

Purpose

The purpose of this protocol is to offer health care providers an understanding of the importance of hydration management in the setting of delirium and provide an approach to the enhancement of oral fluid intake for elderly hospitalized patients who are at risk for dehydration.

Introduction

Dehydration is the most common fluid and electrolyte disorder in both the long-term care setting and among at-risk community dwelling seniors (Lavizzo-Mourey et al. 1988) As well, dehydration is a robust predisposing risk factor for delirium. In a study by Inouye et.al. (1993), 37 % of patients got delirium in the presence of dehydration.

The results of a chronically underhydrated state are confusion, dehydration, urinary and respiratory infections and constipation (Palevsky, Bhagrath & Greenberg,1996). If dehydration is left untreated mortality may exceed 50% (Weinberg & Minaker,, 1995).

Definition of Associated Terms

Dehydration:

Hypertonic dehydration(intracellular dehydration.)

Is a depletion in the total body water content due to pathologic fluid loss (e.g. fever); diminished water intake or a combination of both (Gross et al., 1992). Water losses exceed sodium losses and the result is hypernatremia in the extracellular fluid compartment, which draws fluid from the intracellular compartment. Serum sodium is usually elevated. Circulation is usually not compromised unless the fluid loss is very large.

Hypotonic dehydration (extracellular fluid volume depletion)

Occurs when there is greater loss of sodium than water, which results in extracellular fluid loss. Hyponatremia usually occurs. This kind of dehydration can occur with overuse of diuretics causing excess loss of sodium.

Isotonic dehydration (Isotonic fluid volume depletion)

Is a balanced depletion of water and sodium causing extracellular fluid loss. Causes include vomiting, diarrhea and fasting (Weinberg et al. 1995).

Individuals at risk

Decreased fluid intake and increased fluid loss place the elderly at risk for dehydration. Some of the age related changes that contribute to this are:

Decreased thirst perception (Phillips et al., 1984)
 Reduced total body water as a portion of body weight (Mack et al. 1994)
 Decreased ability of the aged kidney to concentrate urine (Silver, 1990)
 Decreased renin activity and aldosterone secretion (Crane & Harris, 1976)
 Decreased effectiveness of vasopressin (Faull, Holmes & Baylis, 1993)

Additionally, patients on dysphagic (thickened fluid) diets are at risk for dehydration due to the limited selection of appropriately thickened substances to ingest and their frequent dependency on others to assist them with eating.

Risk factors for dehydration in long-term care settings include:

- 85 years of age
- Functionally semi-dependent (those persons who are cognitively unaware of their needs yet have mobility: and those who are physically unable to meet their needs but can express them.
- Functionally independent
- Dementia
- >than 4 medications
- few fluid ingestion opportunities
- 4 or more chronic conditions

Signs of dehydration in the elderly:

<u>Parameter</u>	<u>Physical sign</u>
Vital signs	rapid pulse orthostatic hypotension
Weight	acute decrease
Oral mucous membranes	Dry pale, decreased saliva
Tongue	Dry, longitudinal furrows
Thirst	increased
Eyes	Sunken
Speech	Difficulties articulating
Confusion	Acute onset, reduced alertness
Weakness	Reluctance to get out of bed, lassitude
Constipation	hard stool
Urine Output	Concentrated urine, reduced volume
Eating	Difficulty chewing food due to decreased saliva

Who would most benefit from the use of this protocol?

Patients who have or are at risk for dehydration
 Patients with feeding and eating difficulties
 Patients who do not have an order for fluid restriction

Oral Fluid Enhancement Interventions

Before a care plan can be devised with appropriate interventions an initial assessment of pertinent information and completion of a risk appraisal checklist is recommended. Outcome indicators can also be used to evaluate progress.

A. Initial assessment:

Basic Physiological measures: Routine vitals plus orthostatic blood pressure, height, **weight**, inspection of the oral cavity and speech, observations of urine and bowel movements, one 24 hr. intake /output record

Patients Preferences:

When does the patient consume most of his/her fluids? e.g. with or between meals
How does the patient see meeting his/her fluid requirements?
What helps /what doesn't?

Laboratory tests:

Laboratory parameters used to determine hydration status include electrolytes, creatinine, urea, \pm osmolarity. However other conditions can occur which can alter these lab values i.e. renal vascular disease in the absence of dehydration, therefore interpretations of these values must be made in the context of the clinical presentation. Additionally, a change from the patient's baseline can be more significant than an absolute finding in elderly patients

Related health history:

Any conditions or specific disease states which may affect hydration status i.e. diabetes, CHF, dementia, chronic renal disease, depression, limited mobility, medically imposed fluid restrictions, malnutrition, vomiting, diarrhea (refer to risk appraisal check list)

Pertinent Medications:

Diuretics
Osmotic laxatives
Steroids

Intake behaviours

These are behaviours unique to each individual patient associated with fluid intake e.g. Swallowing Problems specifically (May need to seek consultation from Speech /Language Pathologist)
Inability to hold a cup
Resistant to drink D/T fear of incontinence

Pertinent assessment information should be recorded in the care plan.

B. Assessment of Hydration Status and Risk Appraisal Checklist (See appendix A)

In order to complete the risk appraisal checklist you will need to access the patient's chart. The more indicators present on the checklist, the greater the likelihood of underhydration or dehydration. This task may be completed during multidisciplinary weekly rounds.

Interventions

The entire team should address patient hydration. At all times, priority should be given to those interventions, which are deemed important by the patient/family.

1. Calculate a daily fluid goal. All patients should have an individualized fluid goal based on his/her needs and desires. The dietician can assist in this. Generally patients require a 24 hour intake of at least 1500 mls of oral liquids per day for each patient is required, unless there are medical conditions present that may necessitate fluid restriction e.g. CHF, hyponatremia. A simple formula for calculating fluid requirements is as follows:
≥ 65 years : 35 cc/kg/day plus replacement of extraordinary losses (i.e. suctioning, excessive sweating, gastric drainage via gastric tube, excessive urination, vomiting, diarrhea)
<64 years: 25-30cc/kg/day plus replacement of extraordinary losses as mentioned above

Any patient who develops a fever, vomiting, diarrhea, or infection should be closely monitored. Implementing intake and output records and provision of additional fluids as tolerated is important. Patients who are required to be NPO should be given special consideration to shorten the time they must be NPO and should be provided with adequate amounts of fluids and food when they have completed their tests. The attending physician/ Nurse Practitioner should be notified promptly, if any patient develops impaired oral intake.

Please note: When providing fluids to **any** patient one must be aware of any fluid and/or diet restrictions and precautions i.e. diabetic diets, dysphagic diets. Check with the R.N. caring for the patient on this issue.

Fluids can be provided by a variety of liquid e. g., fruit juices, water, carbonated beverages, sports replacement drinks, enteral formulas, intravenous solutions, hypodermoclysis and foods with a high water content. Please check with the nutritionist to see what liquids are supplied by the hospital

When replacing fluids through the IV route in particular, the patient should be monitored for signs of fluid overload. Patients developing orthopnea, shortness of breath, paroxysmal nocturnal dyspnea, alterations in sleep patterns or increased confusion should be brought to the attention of the physician/NP immediately.

2. Accommodate patient preferences for particular liquids during or between meals whenever possible. Schedule fluid rounds midmorning and late afternoon. Plan "happy hours" or "tea time" in the afternoon where residents can gather together for additional fluids, nourishment and socialization. For patients on special diets, a stock of favourite "appropriate" fluids should be kept on the unit and/or provided by the family i.e. diet pop or "crystal lite" for patients with diabetes and containers of pureed fruit for dysphagic patients.
3. Open all containers on meal trays, pour liquids into cups or provide straws depending on individual needs.
4. Ensure water is available at bedside or chairside for the entire day. Pitchers and cups must be within reach and not too heavy for the patient to handle. Please ask the Occupational therapist to assess the need for a modified fluid container, when required.
5. Offer fluids regularly during the day. Fluid intake can be planned so that 75% to 80% is provided at meals and 20% -25% is delivered during non-meal times. Patients who do not spontaneously serve themselves may consume liquids when they are offered as part of a snack.
6. Encourage consumption of fluids with medication. If possible, there should be a standard amount of fluid given with medication e.g. 180-200 mls. Patients should sit up for 20 minutes if possible to ensure medication does not remain in the esophagus.
7. Encourage family members to participate in feeding and teach them to encourage the patient to consume both liquids and food.
8. A "Sip n' go" intervention can be used for residents who are reluctant to drink a standardized amount of fluid. For this intervention anyone who enters a resident's room while that individual is awake offers at least 60 mls of water or other beverage of choice. Place this instruction on the patients care plan and/or over the bed in the patient's room.
9. Fluid documentation. On initial assessment, at least one accurate intake and output recording should be documented and include the amount of fluid consumed, intake pattern, difficulties with consumption and urine colour.

Evaluation

To evaluate the use of this protocol among patients who are at risk for or have dehydration, relevant outcomes and management interventions should be evaluated on a regular basis.

Some outcomes of adequate hydration reported in the literature include:

1. Maintenance of body hydration e.g. 24 hr. intake/output balanced
body weight stable
sunken eyes not present
excessive thirst not present
adequate saliva present
urine output, serum electrolytes and renal
function within normal limits
2. Decreased confusion (Mentes et al., 1999)
3. Decreased constipation(Sheehy & Hall, 1998)
4. Improvement in urinary incontinence (Spangler et al. 1984)

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Appendix A RISK APPRAISAL CHECKLIST

Patient Name _____

Date _____

Check all conditions that apply to this patient. The greater the number of characteristics present, the greater the risk for hydration problems.

Age > 85 years

<p>Significant Health Conditions/Situations</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cognitively Impaired <input type="checkbox"/> Depressed <input type="checkbox"/> Semi-Dependent <input type="checkbox"/> Urinary Incontinence <input type="checkbox"/> Diabetes <input type="checkbox"/> CHF <input type="checkbox"/> Dementia <input type="checkbox"/> CVA <input type="checkbox"/> Major Psychiatric Disorders <input type="checkbox"/> Renal Disease <input type="checkbox"/> > 4 Chronic Health Conditions <input type="checkbox"/> Malnutrition <input type="checkbox"/> Repeated Infections <input type="checkbox"/> History of Dehydration <input type="checkbox"/> Fluid Intake of <1500ml/day <input type="checkbox"/> NPO Status <input type="checkbox"/> Fever <input type="checkbox"/> Vomiting or diarrhea <input type="checkbox"/> Constipation 	<p>Intake Behaviours</p> <ul style="list-style-type: none"> <input type="checkbox"/> Has Difficulty Swallowing/Chokes <input type="checkbox"/> Poor Eater (eats <50% of food) <input type="checkbox"/> Receiving IV Fluid Therapy <input type="checkbox"/> Receives Tube Feedings <input type="checkbox"/> Requires Assistance to Drink <input type="checkbox"/> Can Drink Independently But Forgets <input type="checkbox"/> Holds Food/Fluid in Mouth <input type="checkbox"/> Drools <input type="checkbox"/> Spills <input type="checkbox"/> Spits out Food/Fluid
<p>Laboratory Abnormalities</p> <ul style="list-style-type: none"> <input type="checkbox"/> ↑ Serum Sodium <input type="checkbox"/> ↑ BUN/Creatinine 	
<p><small>*The Risk Appraisal Checklist is currently being researched. Future updates of the checklist will be available from the author.</small></p>	

Adapted from Mentes, J.C., & Iowa Veterans Affairs Nursing Research Consortium. (2000). Hydration Management Protocol. S.S. Lyons & M.G. Titler (Eds.). Journal of Gerontological Nursing, 26(10),6 -15.

The full "Risk Appraisal Checklist" is available in the Hydration Management Protocol. Contact the Research Dissemination Core at either www.nursing.uiowa.edu/gnirc or email research-dissemination-core@uiowa.edu