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- Hospice Palliative Care Program
Symptom Guidelines

Dehydration



Dehydration

□ Rationale

This guideline is adapted for inter-professional primary care providers working in various settings in Fraser Health, British Columbia and the Fraser Valley Cancer Center and any other clinical practice setting in which a user may see the guidelines as applicable.

Dehydration in the last days may bring about relief from previously distressing symptoms. It has been proposed that the fluid and electrolyte imbalances of dehydration may serve as a natural anesthetic to reduce the patient's suffering.⁽¹⁻¹³⁾

□ Scope

This guideline provides recommendations for the assessment and symptom management of adult patients (age 19 years and older) living with advanced life threatening illness and experiencing the symptom of dehydration in the last days. This guideline does not address disease specific approaches in the management of dehydration.

□ Definition of Terms

- “Withdrawing from food and fluid is a common, natural part of the dying process”.⁽¹⁾
- **Dehydration** is a common condition that is associated with the following conditions; thirst, dry mouth, fatigue, constipation and decreased cognition which may not be attributable to dehydration alone. Low fluid intake has not shown to predict the severity of these symptoms.^(1, 3, 5, 7, 10, 14-17)
- Medically, **dehydration** is a serious and potentially life-threatening condition in which the body contains an insufficient volume of water for normal functioning. The term “volume depletion” is similar to dehydration, but it refers to the loss of salts as well as water.⁽¹⁸⁾

□ Standard of Care

1. Assessment
2. Diagnosis
3. Education
4. Treatment

Recommendation 1 Assessment of Dehydration

Ongoing comprehensive assessment is the foundation of effective dehydration management, including interview, physical assessment, medication review, medical and surgical review, psychosocial and physical environment review and appropriate diagnostics^(1-6, 9, 13-15, 17, 19, 20) (see Table 1).

Table 1: Dehydration Assessment using Acronym O, P, Q, R, S, T, U and V

O Onset	When did you start to feel dehydrated? Have you experienced it before?
P Provoking / Palliating	What brought it on? What makes it better? What makes it worse?
Q Quality	What does it feel like (dry mouth / skin, thirst)? Can you describe it?
R Region / Radiation	Where is it affecting or bothering you?
S Severity	What is the intensity of this symptom (On a scale of 0 to 10 with 0 being none and 10 being worst possible)? Right Now? At Best? At Worst? On Average? How bothered are you by this symptom? Are there any other symptom(s) that accompany this symptom?
T Treatment	What medications and treatments are you currently using? How effective are these? Do you have any side effects from the medications and treatments? What medications and treatments have you used in the past?
U Understanding / Impact on You	What do you believe is causing this symptom? How is this symptom affecting you and / or your family?
V Values	What is your goal for this symptom? What is your comfort goal or acceptable level for this symptom (On a scale of 0 to 10 with 0 being none and 10 being worst possible)? Are there any other views or feelings about this symptom that are important to you or your family?

* Physical Assessment (as appropriate for symptom)

Recommendation 2 Diagnosis

Intervention aimed at reducing dehydration must take into account the cause (often multi-factorial) of the symptom, the disease trajectory and the patient / family values and goals of care.^(1, 3, 7, 13-16, 19-21)

Reversible:

Nausea and / or vomiting – reduced intake

Diarrhea – malabsorption

Gastrointestinal Obstruction – reduced intake and malabsorption

Anorexia – reduced intake

Infection – increases insensible losses, reduced intake

Hypercalcemia Medications – diuretics increase urinary losses

Non-Reversible:

Terminal / end-stage disease or illness

Recommendation 3 Education

Provide anticipatory guidance and / or education whenever possible to alleviate distress about hydration status:^(1, 4, 8, 16)

- Oral intake will lessen over time related to changes in metabolism and body requirements.^(3-5, 19)
- Parenteral fluid does not equal nutrition.⁽²²⁾
- Hydration has little or no effect on sensation of thirst and dry mouth.^(1, 3, 6, 9, 15, 20)
- Teach interventions that provide relief from thirst and / or dry mouth such as oral care, offering fluids, ice chips, chewing gum, mist or spraying mouth, lubrication of lips and skin care so family can contribute to care (if desired).^(1, 5, 6, 8, 10, 12)
- Some situations may dictate the need for a team and family conference.⁽¹⁹⁾
- Resources for patients considering the benefits and burdens of parenteral hydration.^(23, 24)

Recommendation 4 Treatment

Goal of treatment should be to conserve or restore the best quality of life. It should be made on an individual basis taking into consideration the potential risks and benefits and should be reviewed daily.^(1-4, 7-11, 14, 15, 17, 19, 20, 25)

Management of Dehydration

- Good oral care should be provided by family or caregivers.^(1, 8, 9, 11, 12, 15, 26)
- Offer oral fluids (with or without lemon), ice chips or mist / spray to hydrate oral tissues.^(1, 2, 9, 26)
- When oral intake is severely restricted, parenteral hydration (example – hypodermoclysis) may be indicated:
 - For patients in good symptom control when maintenance of cognitive status is important.⁽²⁶⁾
 - To avoid medication side effects such as myoclonus, discontinuing hydration once side effect resolves or the terminal phase is reached.⁽³⁾
- A short trial of rehydration with clear goals and time frame (48 to 72 hours) to assess relief of symptoms that may be caused by dehydration.^(1, 2, 6, 10, 14, 15, 22, 25, 26)

Hydration

Clinical studies suggest that terminally ill cancer patients may achieve adequate hydration with much lower volumes (as low as one litre per day) than recommended for the average medical and surgical patient due to:^(14, 20)

- Decreased body weight.
- Decreased free water clearance.
- Decreased insensible water losses due to decreased physical activity.

Appropriate Use of Parenteral Fluids
Theoretical advantages^(1, 7, 10-13, 19-21, 27)

- May relieve thirst and improve oral comfort.
- Improved renal function will lead to increased clearance of drugs and toxic metabolites.
- May facilitate resolution of reversible conditions (hypercalcemia, opioid neurotoxicity).
- Facilitates productive cough and thereby improves clearing of secretions.
- Improves function of unobstructed bowel.
- May improve delirium and / or terminal agitation, leading to better communication with family.
- Satisfies family’s need to provide nourishment and “do everything that can be done”.

Theoretical disadvantages^(1, 7, 10-13, 19, 20, 27)

- Oral secretions causing need for suctioning.
- Urine output causing bed-wetting and bedpans or catheters.
- Respiratory tract secretions causing cough, respiratory congestion.
- Gastrointestinal secretions causing vomiting.
- Edema may contribute to pressure sores.
- May prolong the agonal period without prolonging life.
- Places physical barriers between the patient and family which can inhibit physical contact with the patient.
- Medicalization of dying forcing the patient to be admitted to facility.

Hypodermoclysis (HDC) – the subcutaneous administration of fluid, can be considered for rehydration.

- Hypodermoclysis is a safe and effective way of providing parenteral hydration.⁽²⁷⁾
- Criteria for selecting patients:
 - Unable to ingest sufficient amounts of fluid orally, is dehydrated and has distressing symptoms that diminish quality of life.^(26, 28-31)
 - Intravenous access is not required, possible or practical.^(30, 31)
 - Patient and / or family wish patient to receive hydration by this route.^(28, 29)
 - Patient does not require either immediate or high volume fluid replacement.^(12, 29, 32, 33)
 - Patient does not have respiratory congestion, large ascites or extensive edema.⁽²⁹⁾
 - Patient does not have coagulation problem or bleeding.^(29, 30, 32, 34)
- Standards of Practice:
 - The patient will be assessed to determine whether hydration is indicated. Dehydration alone is not a sufficient reason to offer hypodermoclysis. Confusion, delirium and myoclonus are often caused by the accumulation of toxic metabolites of drugs (such as opioids) and may be improved or relieved by rehydration.^(26, 32, 33)
 - Prior to initiation of hypodermoclysis, a discussion should take place with the patient and family / caregiver to explain the benefits and burdens of hydration, clarify expectations and delineate clear goals. If hypodermoclysis is being offered on a trial basis or for a limited time period the parameters must be explained to the patient and family and indications for discontinuing hypodermoclysis will be discussed prior to its initiation.^(13, 28, 35, 36)
 - Hypodermoclysis can be administered as an overnight infusion^(29, 36), as a bolus^(19, 29, 30, 36, 37) or by continuous infusion.^(19, 29-32, 37)

- Recommended volume maximum 1 to 1.5 litres^(26, 29) of an isotonic solution daily;
 - Normal Saline (0.9%).^(19, 26, 37)
 - 2/3 Dextrose (5%) – 1/3 Normal Saline (0.9%).^(19, 26)
 - D5½NS.^(29, 31)
 - Ringers Lactate.⁽³¹⁾
 - D5W should **not** be used as it becomes hypotonic as the dextrose is absorbed.^(32, 37)
 - Potassium chloride up to 40 mEq per litre may be added to the solution ^(26, 29, 30)
 - Hyaluronidase is no longer felt to be justified⁽³⁰⁾ or necessary^(19, 26, 36, 37) for routine bolus hydration and is no longer available in Canada.
- Recommended sites for hypodermoclysis (ask patient which site is preferred);
 - Upper chest, back (below scapula), thigh and upper abdominal wall.^(12, 30-32)
 - Do not insert needle for hypodermoclysis into previously irradiated skin as absorption may be impaired.
 - For ambulatory patients consider using chest, scapular region and abdomen and for patients limited to bed-rest use thighs and abdomen.⁽¹²⁾
 - Avoid anterior or lateral thigh if edema present; abdomen if ascites present; breast tissue; lateral placement near shoulder; arms (32, 34) and perineum / groin.⁽³⁶⁾

I.V. route should be limited to situations where the subcutaneous administration of fluids is contraindicated: generalized edema or coagulation disorders and patients requiring I.V. for other purposes.^(1, 7, 14)

Rehydration in patients with CHF, extensive edema and hypoalbuminaemia should be undertaken with care.^(1, 7, 15, 16, 20)

□ References

Information was compiled using the CINAHL, Medline (1996 to April 2006) and Cochrane DSR, ACP Journal Club, DARE and CCTR databases, limiting to reviews / systematic reviews, clinical trials, case studies and guidelines / protocols using dehydration terms in conjunction with palliative / hospice / end of life / dying. Palliative care textbooks mentioned in generated articles were hand searched. Articles not written in English were excluded.

1. Black F, Downing GM. Artificial Hydration and Hypodermoclysis Guideline. In: Downing GM, Wainwright W, editors. *Medical Care of the Dying*. Victoria, British Columbia: Victoria Hospice Society Learning Centre for Palliative Care; 2006. p. 311-7.
2. Keefe FJ, Ahles TA, Sutton L, Dalton J, Baucom D, Pope MS, et al. Partner-guided cancer pain management at the end of life: A preliminary study. *Journal of Pain and Symptom Management*. 2005;29(3):263-72.
3. Viola RA, Wells GA, Peterson J. The Effects of Fluid Status and Fluid Therapy on the Dying: A Systematic Review. *Journal of Palliative Care*. 1997 May 20, 1997;13(4):41 - 52.
4. Gray R. To Hydrate or Not to Hydrate? *Nursing Times*. 1999 June 9 - 15, 1999;95(23):36 - 7.
5. Ersek M. Artificial Nutrition and Hydration: Clinical Issues. *Journal of Hospice and Palliative Nursing*. 2003 October - December 2003;5(4):221 - 30.
6. End of Life / Palliative Education Resource Center Medical College of Wisconsin. Non-Oral Hydration and Feeding in Advanced Dementia or at the End of Life. Guidelines for Physician Staff - Froedtert Hospital, Milwaukee, Wisconsin; Available from: <http://www.eperc.mcw.edu/Educational%20Materials/Clinical/Guide-feeding-dying.pdf>
7. Lanuke K, Fainsinger R, deMoissac D. Hydration Management at the End of Life. *Journal of Palliative Medicine*. 2004;7(2):257 - 63.
8. Andrews M, Bell ER, Smith S, Tischler JF, Veglia JM. Dehydration in terminally ill patients. *Postgraduate Medicine*. 1993 January 1993;93(1):201 - 8.
9. Vullo-Navich K, Smith S, Andrews M, Levine AM, Tischler JF, Veglia JM. Comfort and incidence of abnormal serum sodium, BUN, creatinine and osmolality in dehydration of terminal illness. *The American Journal of Hospice and Palliative Care*. 1998 March/April 1998;15(2):77 - 84.
10. Burge FI. Dehydration and provision of fluids in palliative care. *Canadian Family Physician*. 1996 December 1996;42:2383 - 8.
11. Barham D. The last 48 hours of life: a case study of symptom control for a patient taking a Buddhist approach to dying. *International Journal of Palliative Nursing* 2003 Jun; 9(6): 245-51.
12. Donnelly M. The benefits of hypodermoclysis. *Nursing Standard*. 1999 September 15;13(52):44-5.
13. Mercadante S, Ferrera P, Girelli D, Casuccio A. Patients' and Relatives' Perceptions About Intravenous and Subcutaneous Hydration. *Journal of Pain and Symptom Management*. 2005 October 2005;30(4):354 - 8.
14. Steiner N, Bruera E. Methods of Hydration in Palliative Care Patients. *Journal of Palliative Care*. 1998 December 19, 1997;14(2):6 - 13.
15. Jackson II KC. Evidenced Based Symptom Control in Palliative Care: Nutrition and Hydration Problems in Palliative Care Patients. *Evidenced Based symptom Control in Palliative Care: Systematic Reviews and Validated Clinical Practice Guidelines for 15 Common Problems in Patients with Life Limiting Disease*. 2000;8(1):183 97.
16. Morita T, Tsunoda J, Inoue S, Chihara S. Perceptions and decision-making on rehydration of terminally ill cancer patients and family members. *American Journal of Hospice and Palliative Care*. 1999 May/June 1999;16(3):509 - 16.

17. Morita T, Hyodo I, Yoshimi T, Ikenaga M, Tamura Y, Yoshizawa A, et al. Artificial Hydration Therapy, Laboratory Findings, and Fluid Balance in Terminally Ill Patients with Abdominal Malignancies. *Journal of Pain and Symptom Management*. 2005 February 2006;31(2):130 -9.
18. Wikipedia. Dehydration - definition. 2006 August 9th, 2006; Available from: <http://en.wikipedia.org/wiki/Dehydration>
19. Fainsinger R. Dehydration. In: MacDonald N, Oneschuk D, Hagen N, Doyle D, editors. *Palliative Medicine - A case based manual* 2nd ed. New York: Oxford University Press Inc.; 2005.
20. Bruera E, Neumann CM. Management of specific symptom complexes in patients receiving palliative care. *CMAJ: Canadian Medical Association Journal* 1998 Jun 30; 158(13): 1717-26.
21. Lanuke K. Hydration Management in Palliative Care Settings - A survey of Experts. *Journal of Palliative Care*. 2003 Winter 2003;19(4):278 - 9.
22. Yeomans WR. Hydration and Nutrition in Palliative Care. *The Canadian Journal of CME*. 1997 September 1997:111 - 5.
23. Bailey T, Husney A, Byock I. Should I receive artificial hydration and nutrition? 2004 October 20th, 2004; Available from: <http://bchealthguide.org/kbase/dp/topic/tu4431/dp.htm>
24. American Academy of Family Physicians. Hypodermoclysis: A Way to Replace Lost Fluids. *American Family Physician - Information from Your Family Doctor* 2001 November 1, 2001; Patient education pamphlet]. Available from: <http://www.aafp.org/afp/20011101/hypoph.html>
25. Fainsinger R. Nonoral Hydration in Palliative Care #133. *Journal of Palliative Medicine*. 2006;9(1):206-7.
26. Waller A, Caroline NL. Nutrition and Hydration: Hydration of the Terminally Ill Patient Near the End of Life. *Handbook of Palliative Care in Cancer*. 2nd ed. Boston: Butterworth Heinemann; 2000. p. 70-4.
27. Fainsinger R, Bruera E. When to treat dehydration in a terminally ill patient? *Support Care Cancer*. 1997;5:2005-211.
28. Claisse L. The use of hypodermoclysis in palliative care. *European Journal of Palliative Care: the Journal of the European Association for Palliative Care*. 2005 November - December;12(6):243-6.
29. Sasson M, Shvartzman P. Hypodermoclysis: An Alternative Infusion Technique. *American Family Physician*. 2001 November 1, 2001;64(9):1575 - 8.
30. Frisoli A, de Paula AP, Feldman D, Nasri F. Subcutaneous Hydration By Hypodermoclysis. *Drugs and Aging*. 2000 April 2000;16(4):331-19.
31. Hays H. Hypodermoclysis for Symptom Control in Terminal Care. *Canadian Family Physician*. 1985 June;31:1253-6.
32. Brown MK. Hypodermoclysis: Another way to replace fluids. *Nursing* 2000. 2000 May;30(5):58-9.
33. Barton A, Fuller R, Dudley N. Using subcutaneous fluids to rehydrate older people: Current practices and future challenges. *Quarterly Journal of Medicine*. 2004;97(11):765-8.
34. Capital Health Regional Palliative Care Program. Hypodermoclysis (HDC) Administration Protocol for Palliative Care Patients. 2003 October 24, 2005. Available from: <http://www.palliative.org/PC/ClinicalInfo/Clinical%20Practice%20Guidelines/PDF%20files/3A7%20Hypodermoclysis%20Admin%20Protocol%20for%20PC%20Patients.pdf>
35. McAulay D. Dehydration in the terminally ill patient. *Nursing Standard*. 2001 October 10;16(4):33-7.
36. Bruera E, Neumann CM, Pituskin E, Calder K, Hanson J. A randomized controlled trial of local injections of hyaluronidase versus placebo in cancer patients receiving subcutaneous hydration. *Annals Of Oncology*. 1999 August 4th, 1999;10:1255-8.
37. Fainsinger R. Nonoral Hydration Techniques in Palliative Care #134. *Journal of Palliative Medicine*. 2006;9(1):207-8.