**[](http://www.mypcnow.org)**

**FAST FACTS AND CONCEPTS #313**

**THIRST IN PALLIATIVE CARE**

**April Zehm MD, Jonathan Mullin MD, Haipeng Zhang DO**

**Background** Thirst is a common source of distress in the seriously ill. This *Fast Fact* reviews thirst in patients with serious illness. See *Fast Fact* #182 on causes and treatment of dry mouth.

**Physiology** Thirst is the desire to drink fluids in response to a water deficit. Social customs, dry mouth, accompanying food intake, fluid availability, and palatability all serve as cues to drink. Seriously ill patients encountered by hospice and palliative care clinicians are at risk for thirst due to dehydration, electrolyte disturbances, hypotension, xerostomia, and immobility which can impede access to water. Patients with heart failure (HF), with end stage renal disease (ESRD), on mechanical ventilation, and taking certain medications (e.g. anti-hypertensives, tolvaptan, diuretics, or SSRIs) are also at increased risk. While opioids cause xerostomia, whether or not they cause thirst is controversial (1,2).

**Thirst vs. xerostomia** Thirst is the desire to drink, while xerostomia is subjective or objective dry mouth. While xerostomia can contribute to thirst, not all patients with dry mouth experience thirst. Similarly, thirsty patients may not have xerostomia present. Research studies often use xerostomia as a surrogate for thirst, making it difficult to evaluate the prevalence and treatment efficacy for either symptom independently. It is important that clinicians evaluate for xerostomia or thirst as independent symptoms and determine if reversible causative factors are involved.

**Measurement** In clinical and research settings, thirst is self-reported and has high individual variability. There is no consensus on the best way to measure the frequency, intensity, quality and distress of thirst. Unidimensional severity scales and a 6-item Thirst Distress Scale have both been used (3).

**Thirst in dying patients** Around 80-90% of dying patients report significant thirst (4,5). Given its high prevalence, providers should routinely assess for thirst among dying patients who are able to report the symptom. The use of artificial or medically-assisted hydration to alleviate symptoms of dehydration amongst the terminally ill remains controversial.  The concern that dehydration-related symptoms, including thirst, can cause discomfort is weighed against the concern that iatrogenic over-hydration can lead to pain and dyspnea from fluid retention.  Studies of thirst in dying patients conclude there is little relationship between artificial hydration and thirst (5-8). Instead, daily oral care and sips of oral fluid administered for comfort can improve thirst (5-9) and should be routinely offered (see *Fast Fact* #133). Concerned family and friends may be distressed that their loved one is experiencing thirst at the end of life, which can prompt requests for artificial nutrition or hydration. While these requests should be considered on a case by case basis, reassurance that artificial hydration is unlikely to alleviate thirst and comes with significant risks should be provided.

**Patients with ESRD** Thirst and xerostomia are associated with higher inter-dialytic weight gain (IWG) which in turn increases cardiovascular morbidity and mortality (10,11). Increasing the frequency of dialysis from three times per week to daily is the only change to dialysis that has conclusively shown to reduce thirst scores, but this has obvious practical limitations (12). Angiotensin converting enzyme inhibitors have been associated with a reduction in thirst scores and IWG, but this benefit does not seem to last beyond six months (13-16). Frequent gum chewing and saliva substitutes used more than six times per day may alleviate thirst for at least several weeks after initiation (17-18).

**Patients in the ICU**  Significant thirst has been reported in over 70% of critically ill patients (19). An “ICU bundle” of oral swab wipes, sterile ice-cold water sprays, and a lip moisturizer has been shown to decrease thirst intensity, thirst distress, and dry mouth in ICU patients (20).

**Patients with HF** Liberalization of fluid restrictions has been shown to decrease thirst in patients with chronic, stable HF and hospitalized patients with acute, decompensated HF (21-22). Importantly, these and multiple other studies did not show any change in mortality or readmission rates. In consultation with a patient’s cardiology team, liberalization of fluid restrictions should be considered in patients with HF and distressing thirst, along with addressing medications that are causing dry mouth (23).

**Summary** In patients reporting thirst, perform a clinical assessment to differentiate xerostomia and thirst and identify potentially reversible causes of either symptom. Available evidence suggests thirst is common in dying patients and is unlikely to be improved with artificial hydration especially in non-awake patients. Education, emotional support, oral care, and sips of fluid should be offered instead. Patients with ESRD, HF, and intubated ICU patients may have specific interventions which can improve thirst.

**References:**

1. [Stotts N](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Stotts%20NA%5BAuthor%5D&cauthor=true&cauthor_uid=25116914), [Arai S](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Arai%20SR%5BAuthor%5D&cauthor=true&cauthor_uid=25116914), et al. Predictors of thirst in intensive care unit patients. [*J* Pain Symptom Manage.](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/25116914) 2015; 49(3):530-8.
2. Wiffen P, Derry S, Moore R. Impact of morphine, fentanyl, oxycodone, or codeine on patient consciousness, appetite and thirst when used to treat cancer pain. *Cochrane Database Syst Rev*. 2015; 5:CD011056.
3. Welch J. Development of the thirst distress scale. [*Nephrol Nurs J*.](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=welch+2002+thirst+distress+scale) 2002; 29(4):337-41.
4. Ellershaw J, Sutcliff J, Saunders C. Dehydration and the dying patient. *J Pain Sympt Manag*. 1995; 10(3): 192-197.
5. Morita T, Tei Y, et al. Determinants of the sensation of thirst in terminally ill cancer patients. *Suppt Care Cancer*. 2001; 9(3):177-186.
6. Burge F. Dehydration symptoms of palliative care cancer patients. *J Pain Sympt Manag*. 1993; 8(7): 454-464.
7. [Musgrave C](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Musgrave%20CF%5BAuthor%5D&cauthor=true&cauthor_uid=8648517), [Bartal N](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Bartal%20N%5BAuthor%5D&cauthor=true&cauthor_uid=8648517), [Opstad J](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Opstad%20J%5BAuthor%5D&cauthor=true&cauthor_uid=8648517). The sensation of thirst in dying patients receiving IV hydration. [*J* Palliat Care.](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=musgrave+1995+thirst) 1995; 11(4):17-21.
8. [Cerchietti L](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Cerchietti%20L%5BAuthor%5D&cauthor=true&cauthor_uid=12411847), [Navigante A](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Navigante%20A%5BAuthor%5D&cauthor=true&cauthor_uid=12411847), et al. Hypodermoclysis for control of dehydration in terminal-stage cancer. [*Int J Palliat Nurs.*](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/12411847) 2000; 6(8):370-4.
9. McCann R, Hall W, Groth-Juncker A. Comfort care for terminally ill patients. The appropriate use of nutrition and hydration. [*JAMA*.](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/7523740) 1994; 272(16):1263-6.
10. [Bots C](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Bots%20CP%5BAuthor%5D&cauthor=true&cauthor_uid=15665029), [Brand H](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Brand%20HS%5BAuthor%5D&cauthor=true&cauthor_uid=15665029), et al. Interdialytic weight gain in patients on hemodialysis is associated with dry mouth and thirst. [*Kidney Int*.](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/15458464) 2004; 66(4):1662-8.
11. Mistian, P. Thirst, interdialytic weight gain and thirst-interventions in hemodialysis patients: a literature review. *Nephrology Nursing Journal*. 2001; 28(6): 601-615.
12. Kooistra M, Vos, J, et al. Daily home haemodialysis in the Netherlands: effects on metabolic control haemodynamics, and quality of life. *Nephrol Dial Transplant*. 1998; 13: 2853-2860.
13. Yamamoto T, Shimizu M, et al. Role of angiotensin II in the pathogenesis of hyperdipsia in chronic renal failure. *JAMA*. 1986; 256(5): 604-608.
14. Oldenburg B, MacDonald G, Shelley S. Controlled trial of enalapril in patients with chronic fluid overload undergoing dialysis. *BMJ* 1988; 296(6629): 1089-91.
15. Kuriyama S, Tomonari H, Sakai O. Effect of cilazapril on hyperdipsia in hemodialyzed patients. *Blood Purif*. 1996; 14(1): 35-41.
16. [Hamad A](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Hamad%20A%5BAuthor%5D&cauthor=true&cauthor_uid=12212825), [Khosrovaneh A](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Khosrovaneh%20A%5BAuthor%5D&cauthor=true&cauthor_uid=12212825), et al. Lack of effect of long-term use of angiotensin-converting enzyme inhibitors by hemodialysis patients on thirst and fluid weight gain. [*Ren Fail*.](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=hamad+2002+thirst) 2002; 24(4):461-6.
17. [Bots C](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Bots%20CP%5BAuthor%5D&cauthor=true&cauthor_uid=15665029), [Brand H](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Brand%20HS%5BAuthor%5D&cauthor=true&cauthor_uid=15665029), et al. Chewing gum and a saliva substitute alleviate thirst and xerostomia in patients on haemodialysis. [*Nephrol Dial Transplant.*](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/15665029) 2005; 20(3):578-84.
18. [Jagodzińska M](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Jagodzi%C5%84ska%20M%5BAuthor%5D&cauthor=true&cauthor_uid=21185739), [Zimmer-Nowicka J](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Zimmer-Nowicka%20J%5BAuthor%5D&cauthor=true&cauthor_uid=21185739), [et](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Nowicki%20M%5BAuthor%5D&cauthor=true&cauthor_uid=21185739) al. Three months of regular gum chewing neither alleviates xerostomia nor reduces overhydration in chronic hemodialysis patients. [*J Ren Nutr.*](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/21185739) 2011; 21(5):410-7.
19. Puntillo K, Arai S, et al. Symptoms experienced by intensive care unit patients at high risk of dying. [*Crit Care Med*.](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/20711069) 2010; 38(11):2155-60.
20. [Puntillo K](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Puntillo%20K%5BAuthor%5D&cauthor=true&cauthor_uid=24894026), [Arai S](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Arai%20SR%5BAuthor%5D&cauthor=true&cauthor_uid=24894026), et al. A randomized clinical trial of an intervention to relieve thirst and dry mouth in intensive care unit patients. *Intensive Care Med*. 2014; 40(9): 1295-1302.
21. Holst M, Stromberg A, et al. Liberal versus restricted fluid prescription in stabilised patients with chronic heart failure: result of a randomised cross-over study of the effects on health-related quality of life, physical capacity, thirst and morbidity. *Scand Cardiovasc J.* 2008; 42(5):316-322.
22. [Aliti G](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Aliti%20GB%5BAuthor%5D&cauthor=true&cauthor_uid=23689381), [Rabelo E](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Rabelo%20ER%5BAuthor%5D&cauthor=true&cauthor_uid=23689381), et al. Aggressive fluid and sodium restriction in acute decompensated heart failure: a randomized clinical trial. [*JAMA Intern Med*.](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/23689381) 2013; 173(12):1058-64.
23. Li Y., Fu B, Qian X. Liberal versus restricted fluid administration in heart failure patients: a systematic review and meta-analysis of randomized trials. [*Int Heart J.*](http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/?term=Liberal+Versus+Restricted+Fluid+Administration+in+Heart+Failure+Patients) 2015; 56(2):192-5.

**Authors’ Affiliatons:**  Massachusetts General Hospital; Harvard Medical School; Dana-Farber Cancer Institute; Boston Children’s Hospital; Brigham and Women’s Hospital, Boston, MA.

**Conflicts of Interest:** none

**Version History**: Originally edited by Drew Rosielle MD; electronically published February 2016

***Fast Facts and Concepts*** are edited by Sean Marks MD (Medical College of Wisconsin) and associate editor Drew A Rosielle MD (University of Minnesota Medical School), with the generous support of a volunteer peer-review editorial board, and are made available online by the [Palliative Care Network of Wisconsin](http://www.mypcnow.org/) (PCNOW); the authors of each individual *Fast Fact* are solely responsible for that *Fast Fact’s* content. The full set of *Fast Facts* are available at [Palliative Care Network of Wisconsin](http://www.mypcnow.org/) with contact information, and how to reference *Fast Facts.*

**Copyright:**  All *Fast Facts and Concepts* are published under a Creative Commons Attribution-NonCommercial 4.0 International Copyright (<http://creativecommons.org/licenses/by-nc/4.0/>). *Fast Facts* can only be copied and distributed for non-commercial, educational purposes. If you adapt or distribute a *Fast Fact*, let us know!

**Disclaimer:** *Fast Facts and Concepts* provide educational information for health care professionals. This information is not medical advice. *Fast Facts* are not continually updated, and new safety information may emerge after a *Fast Fact* is published. Health care providers should always exercise their own independent clinical judgment and consult other relevant and up-to-date experts and resources. Some *Fast Facts* cite the use of a product in a dosage, for an indication, or in a manner other than that recommended in the product labeling. Accordingly, the official prescribing information should be consulted before any such product is used.