**Dehydration and Thickened Liquids**

Dysphagia is an umbrella term for swallowing problems. Estimates of dysphagia prevalence are 13% in community dwelling elders, approximately 25% of hospitalized individuals and 60% or more of elderly residents living in skilled nursing facilities. Studies, of course, vary, but these appear to be the estimates accepted in the medical community. Dysphagia is associated with malnutrition, dehydration, pneumonia, reduced functional outcome, choking and mortality.

Whether secondary to neuro degenerative diseases, cardiac events, decreased cognitive skill or general aging, the muscles of the oral mechanism and the nerves enervating those muscles degenerate. It has been estimated that more than 40% of muscle mass is lost in old age. Decreased motor and/or cognitive performance affects the proper transit of the bolus (a small round mass of liquid or chewed food) when swallowing.

The safe swallow includes presentation of food or liquid, containment of food or liquid in the mouth, forming a bolus, transporting the bolus, coordinating breathing during the swallow, the bolus entering the esophagus and clearing material from the mouth and pyriform sinuses that could be aspirated post swallow. Complicating motor and cognitive difficulties, the patient may present with reduction in the senses of taste and smell, decreased sensitivity in the mouth and throat area, decreased oral hygiene and increased use of oral prostheses, all of which affect swallow performance.

Speech Language Pathologists (SLPs) evaluate swallow safety and create plans of treatment (POT), to decrease the risk for aspiration. The goal of the speech language pathologist is to meet nutrition and hydration needs by mouth with a decreased risk for aspiration. The POT may include improving neuro-muscular strength and coordination, training compensatory strategies, altering patient posture, patient and staff education, variations in food and liquid presentation, and altering food texture and liquid viscosity. Determining whether the evaluation, treatment and discontinuation processes meet standards of care is best determined by a forensic SLP available at Lios Manhe LLC Expert Witnesses via hamilton@liosmanhe.com

A bolus of thickened liquid is easier to control than a bolus of thin liquid. Imagine yourself sitting in front of a bucket of water. Reach in and grab a handful of water and you will see that it cannot be done, even with the healthy strong muscles of your hand. Now imagine trying to grab a handful of nectar from the bucket. You will not get a lot, but certainly much more than you could of water, imagine doing so with honey, then pudding and you will see that each increase in thickening is exponentially easier to control.

In addition to increased control, thickened liquids flow more slowly, allowing the patient time to coordinate a safe swallow. During the healthy swallow, the epiglottis is triggered to cover the airway and the upper epiglottic sphincter loosens, thereby allowing the bolus to transit into the esophagus and avoid the airway or trachea. There is evidence that thickened liquids reduce aspiration. Trials of video fluoroscopy have demonstrated improved functional swallow and decreased aspiration with thickened liquids, thus, supporting their use.

As with most medical interventions, thickened liquids have both benefits and weaknesses. Recent research demonstrates that patients consuming thickened liquids consume less than patients consuming thin liquids and are frequently dehydrated. There are several reasons postulated for this decrease in liquid intake including:

* Thickened liquids do not quench thirst the way thin liquids do, and they can suppress flavor or create “off flavors” which could result in decreased liquid consumption. It must also be considered that the taste sensation typically decreases with age, thus the actual impact of thickened liquids on taste is tough to gauge.
* Liquid access is decreased. Thin liquids are more readily available to patients and caregivers.
* It is not uncommon for thickened liquids to be recommended in “small sips” which decrease the overall volume of liquid consumed.
* Thickened liquids may increase feelings of fullness or satiety, decreasing the motivation to drink.

Dehydration disturbs the normal levels of electrolytes and fluid, thus interfering with metabolic processes and body functions. In the elderly this can manifest through impaired kidney function, increased risk for falls, renal failure, constipation, urinary tract infection, impaired mental status, respiratory infection, poor muscle strength, poor wound healing, and pressure ulcers.

Dysphagia itself can result in dehydration. Risk factors for dehydration in skilled nursing facilities for patients who are dysphagic include: cognitive dysfunction, insufficient support at mealtime, inadequate staff training and polymorbidity (multiple acute or chronic conditions)

Standard dehydration avoidance and management strategies in nursing and rehab centers include:

* A multidisciplinary team (MDT) approach including monitoring and documenting fluid intake at and between meals. Measuring both intake and output would be the ideal in identifying dehydration.
* The Care Plan must include risk for dehydration, means of assessment and actions.
* A facility wide plan to increase the availability and promotion of fluid intake. Tea parties, happy hours, staff offering the glass when leaving fluids by the bedside to ensure the patient actually drinks are examples.
* Engaging and including family and loved ones in promoting greater fluid intake.
* Regular bathroom assistance, some elders self-decrease fluid intake because using the toilet is difficult and they cannot be sure of help when needing to use it.
* Potentially a water protocol permitting oral intake of thin water under specific conditions. This is not a cure-all for dehydration risk and must be undertaken only when the SLPs clinical judgement supports it.
* Using strong flavors in thickened liquids to make them more palatable.
* Trials of differing thickening agents to determine patient preference.
* Staff training on the early signs of dehydration and who to report them to.
* Occupational and Physical Therapies should be part of the team to advise on special equipment, enable self-feeding, ensure adequate posture and further educate staff and family.
* At risk patients should be regularly evaluated for dysphagia.
* Staff education and training for feeding and encouraging liquid intake for the at-risk population should be ongoing.

Thickened liquids decrease the risk for aspiration pneumonia and increase the risk for dehydration. Fortunately, there are strategies to reduce the risk for dehydration and in all instances the SLPs clinical judgement should weigh heavily in determining patient safety and quality of life.

Prescribing thin liquids for a dysphagic patient can also contribute to dehydration as liquid consumption can be self-decreased to avoid coughing, gagging and other signs and symptoms of penetration or aspiration. The same is true of undiagnosed dysphagia and its consequent difficulty swallowing liquids.

If you are representing a patient who suffered negative effects of dehydration contact hamilton@liosmanhe.com. Understanding the relative strengths and merits of underlying swallowing, cognitive and airway protection factors in your case can heavily influence the decision to settle or proceed.