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Assessing (de)hydration in dysphagic patients: Review of current guidelines

Speaker biography

Dr. Lee Hooper's research focuses on supporting older people to eat and drink well, and she is a dietitian, nutritionist and systematic reviewer. Her current research (initiated during her National Institute for Health Research Career Development Fellowship) is on preventing and identifying dehydration in older people living in residential (long-term) care. As well as being a Cochrane editor, Lee is a member of the World Health Organization Nutrition Guidance Expert Advisory Group (NUGAG) on Diet and Health, which has recently produced guidance on sodium and potassium intakes. Lee is a Reader in Research Synthesis, Nutrition & Hydration in the Norwich Medical School at the University of East Anglia and has a BSc in Biochemistry, PhD (University of Manchester) and current dietetic registration.



Abstract

Older adults have an increased risk of low-intake dehydration and this appears to be exacerbated in those with dysphagia. Dehydration can be due to insufficient drinking or excess sweating (low-intake or intracellular dehydration) or the loss of fluid and salts, due to diarrhoea or blood loss (hypovolaemia, extracellular or salt-loss dehydration). These two conditions are very different – with different causes, different effects on the body and different treatments. In older adults the most common form of dehydration is low-intake dehydration, the topic of this talk. The prevalence of low intake dehydration in older adults is being explored in an ongoing systematic review¹, but individual studies suggest a prevalence of ~20% in older adults living in long term care², 38% of assisted living memory care residents within a quality improvement project in the United States³, 18% of community-dwelling older adults in the US⁴, and 45% in Sweden⁵. Hospital-based studies have reported prevalence from 20% to 52% amongst hospitalised older adults⁶⁻⁹.

To understand the relationship between low-intake dehydration and dysphagia in our patients we need to be able to identify low-intake dehydration. Whilst serum osmolality is the gold standard measurement for diagnosing low-intake dehydration, it takes time and requires costly invasive blood samples and processing, so serum osmolality is rarely measured in clinical practice¹⁰⁻¹². Other methods of identifying low-intake dehydration include calculated osmolarity, salivary or tear osmolarity, bioelectrical impedance, and a plethora of signs and symptoms. A Cochrane review¹³ examined sixty-seven tests for diagnostic accuracy. When examined as stand-alone tests, expressing fatigue, missing drinks between meals, and Bioelectrical Impedance Analysis (BIA) resistance at 50kHz were all found to have some ability to identify dehydration, but need further assessment. A post-hoc ROC found that drinks intake, urine osmolality and axillial moisture have limited accuracy.

A prospective diagnostic accuracy study¹⁴ investigated forty-nine signs of dehydration compared with serum-osmolality in 188 older long term care residents, finding no useful signs for accurately identifying dehydration. Measures considered included: skin turgor; mouth, skin, and axillary dryness; capillary refill; sunken eyes; blood pressure on resting and after standing; body temperature; pulse rate; and self-reported feelings of thirst and well-being. Studies in older adults have examined the connection between urinary measures and serum osmolality and found a lack of correlation despite these measures appearing useful in young healthy adults^{15,16}. A narrative review graded signs of dehydration, noting that using serum osmolality as a first choice and calculated osmolality (using the Khajuria Krahn equation only¹⁷) as a second choice were grade B (Should be used), whilst BIA, simple signs and tests, shall not be used¹⁸.

Management of dysphagia often involves ingestion of fluids thickened with starch or gum to prevent fluid aspiration, and there have been concerns that such thickeners may reduce the bioavailability of water, promoting low-intake dehydration. Indeed 2/3 of older adults with dysphagia have been identified as being dehydrated¹⁹. Fluid absorption from starch-thickened, gum-thickened and unthickened (pure) water was compared and found to



be identically rapid, with over 95% absorption, in rats and humans²⁰. This was corroborated in a small (single human) isotopic tracer study²¹. Rather than fluids being less bioavailable when thickened it appears that people consume less thickened fluids than they would unthickened fluids. Thickened fluids have been found to be less likely to quench thirst, flavours are poorly released and texture may be impaired. This makes thickened fluid less attractive, so less is consumed, promoting low-intake dehydration²².

This talk will examine the definition and diagnosis of low-intake dehydration in older adults, the relationship between low-intake dehydration and dysphagia, and the intersection of guidelines on prevention of dehydration and support for dysphagia^{12,18,23,24}.

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Watch the 17 minute conference talk with Dr. Lee Hooper and hear about ASSESSING (DE)HYDRATION IN DYSPHAGIC PATIENTS: REVIEW OF CURRENT GUIDELINES

https://youtu.be/6MG6q42xwqo



