

ENDOCRINOLOGY

Hypoglycemia's Effects on Spatial Abilities

Acute, insulin-induced hypoglycemia causes a significant decline in spatial cognitive abilities, according to results of a study conducted by researchers from Royal Infirmary of Edinburgh and University of Edinburgh, both in Edinburgh, UK.

The study included 16 patients with uncomplicated type 1 diabetes (with a median disease duration of 10 years and a median age of 28 years) recruited from one diabetes clinic. Each participant underwent two 60-minute testing sessions at least two weeks apart: a euglycemia session and a hypoglycemia session. At the start of both sessions, patients' blood glucose concentrations were stabilized at the euglycemic level of 4.5 mmol/L for 30 minutes. This level was maintained for the duration of the euglycemia session, and it was lowered over a 20-minute period to 2.5 mmol/L for the hypoglycemia session. During each session, patients were asked to complete six spatial ability tests (which, among other things, required patients to find a pathway through a maze and to assess whether shapes had been rotated, reversed, or were mirror images) and two general cognitive function tests.

Patients had significantly lower scores during the hypoglycemia session than during the euglycemia session on all of the spatial ability tests except the Map Memory Test. This test involves remembering the position of buildings on a street map and relies not just on spatial ability but also visual memory, which the researchers say is preserved dur-



ing hypoglycemia. The Digit Symbol Substitution Test—a cognitive function test that requires the patient to perform number coding quickly—also yielded significantly lower scores during hypoglycemia, which confirms results from previous studies that the speed of information processing is impaired during hypoglycemia, the researchers say. The patients' symptom scores (measured using a Likert scale) during hypoglycemia revealed significant increments in total autonomic, total neuroglycopenic, and malaise symptoms.

The researchers believe their data are important because, in terms of understanding the effects of acute hypoglycemia, spatial abilities were “a lacuna that has now been partly filled.” While most hypoglycemia studies include a spatial ability component, no previous study has focused specifically on these abilities—which are relevant to everyday tasks, such as driving, that rely on interpretation of the surrounding environment.

Source: *Diabetes Care*. 2009;32(8):1503–1506.
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PALLIATIVE CARE

Making End-of-life Decisions Easier

Palliative care that addresses both physical and psychosocial needs can empower patients even in advanced stages of cancer, according to researchers from the Project ENABLE (Educate, Nurture, Advise, Before Life Ends) II Trial. They say that theirs was the first randomized, controlled trial designed to test a palliative care intervention concurrently with oncology treatment.

The intervention was nurse-led and used a case management, educational approach to encourage patients to communicate openly with their families and oncology teams regarding their values, priorities, and treatment preferences. The researchers aimed to teach patients with life limiting cancers and their caregivers about symptom management, advance care planning, treatment decision making, and communication. They also hoped to “activate patients” by coach-

ing them to enhance their coping and problem solving skills over the illness trajectory. The researchers placed particular emphasis on communicating during times when anticancer treatments were less likely to halt disease progression or alleviate symptoms. Such communication, they note, has been associated with improved quality of life, reduced use of aggressive cancer treatments, and increased length of hospice stays.

The study was conducted from November 2003 to May 2008 and included 322 participants from a cancer center in New Hampshire and a VA medical center in Vermont. All patients had received a diagnosis of life limiting cancer (prognosis of about one year) within eight to 12 weeks of study enrollment. Primary cancer sites included the gastrointestinal tract (41%), lung (36%), genitourinary tract (12%), and breast (10%).

A total of 161 patients were assigned randomly to the usual care group, which received unrestricted access to oncology and supportive services,

including the institutions' palliative care services. The other 161 patients received usual oncology care plus the palliative care intervention. For this group, two advanced practice nurses conducted four structured educational and problem solving sessions. They then followed up with each patient by telephone at least monthly until the patient died or the study ended. The nurses also were readily available by telephone to provide ongoing support and to assess the need for referral to other resources, such as a spiritual counselor or hospice.

Compared with participants receiving usual oncology care, those in the palliative care intervention group had higher scores on the Functional Assessment of Chronic Illness Therapy for Palliative Care (which measured quality of life) and lower scores on the Center for Epidemiological Studies Depression Scale (which measured mood). Symptom intensity scores were similar between the two groups, however, as were the numbers of days in the hospital, days in the intensive

care unit, and emergency department visits.

It isn't clear why the intervention improved patients' quality of life without improving symptoms, the researchers say. They theorize that symptom intensity might have been reduced if they had utilized an in-person approach to follow-up contact—as other studies have indicated—rather than telephone-based consultations. Despite this limitation, the researchers say that improving psychological, social, and spiritual concerns for the patient should remain a top priority for caregivers. ●

Source: *JAMA*. 2009;302(7):741–749. doi:10.1001/jama.2009.1198.

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