

Effect of short-term sleep restriction on insulin sensitivity in females (January 2024)

Short sleep duration has been associated with risk of type 2 diabetes, but whether this reflects a causal relationship is uncertain. In a crossover study in 38 females aged 20 to 75 years with baseline sleep duration of seven to nine hours nightly, participants underwent sequential, six-week phases of sleep maintenance (usual sleep time maintained) and sleep restriction (sleep time reduced by 1.5 hours nightly) [2]. Sleep restriction led to increases in fasting insulin concentration and homeostasis model assessment of insulin resistance (HOMA-IR), indicating diminished insulin sensitivity. These changes were independent of changes in adiposity and were more pronounced in postmenopausal compared with premenopausal participants. Further studies are needed to verify the findings in a larger cohort of patients, including males, and to determine whether prolonged sleep restriction causes progressive worsening of glucose homeostasis. (See "Type 2 diabetes mellitus: Prevalence and risk factors", section on 'Sleep duration'.)

Janus kinase inhibition to preserve insulin secretion in early onset type 1 diabetes (January 2024)

In type 1 diabetes, the janus kinase (JAK)/signal transducer and activator of transcription (STAT) pathway has been implicated in immune-mediated beta cell destruction. In a trial in 91 individuals (aged 10 to 30 years) with new-onset type 1 diabetes (diagnosed within 100 days), participants were randomly assigned to daily treatment with the oral JAK1/2 inhibitor baricitinib (n = 60) or placebo (n = 31) [3]. After 48 weeks of therapy, insulin secretion was greater with baricitinib compared with placebo (median stimulated mean C-peptide level 0.65 versus 0.43 nmol/L per minute, respectively). A1C, frequency of hypoglycemia, and the percentage of time spent in the target glucose range (70 to 180 mg/dL [3.9 to 10 mmol/L]) were not significantly different between groups. JAK/STAT pathway inhibition is a promising strategy for preserving insulin secretion in new-onset type 1 diabetes. (See "Type 1 diabetes mellitus: Prevention and disease-modifying therapy", section on 'Cytokine-directed therapies'.)

Severe hypocalcemia with denosumab therapy in dialysis-treated patients (February 2024)

Denosumab use is not restricted in individuals with osteoporosis who have advanced kidney disease. However, concerns remain regarding the risk of severe hypocalcemia in such patients. In a cohort study of 2804 female patients (aged ≥ 65 years) with osteoporosis and undergoing dialysis, severe hypocalcemia (serum calcium < 7.5 mg/dL [1.9 mmol/L] or hypocalcemia requiring emergency care) occurred in a higher proportion of patients who initiated denosumab compared with those who initiated an oral bisphosphonate (12-week weighted cumulative incidence 41.1 versus 2 percent, respectively) [10]. Denosumab also was associated with a higher incidence of very severe hypocalcemia (serum calcium < 6.5 mg/dL [1.6 mmol/L]). A boxed warning about risk of severe hypocalcemia in individuals with advanced kidney disease, especially patients on dialysis, has been added for brand name denosumab (Prolia) [11], underscoring the need for greater caution and increased monitoring during treatment. (See "Denosumab for osteoporosis", section on 'Hypocalcemia'.)

Hearing impairment after teprotumumab for thyroid eye disease (January 2024)

Teprotumumab, an insulin-like growth factor 1 receptor inhibitor, is a relatively new, effective treatment for moderate-to-severe thyroid eye disease. In the initial clinical trials, hearing abnormalities were reported in approximately 10 percent of patients, but audiograms were not routinely performed. In a subsequent prospective study evaluating hearing outcomes before and after teprotumumab therapy in 52 patients, 21 percent had a decline in hearing on audiometry immediately after completing therapy, which persisted after six months in 5 patients [13]. Most patients with hearing loss had baseline hearing dysfunction. It is important to discuss potential adverse hearing effects prior to initiating therapy and review symptoms at each visit. It is reasonable to obtain baseline audiometry in all patients and repeat in individuals who report any change in hearing. (See "Treatment of thyroid eye disease", section on 'Teprotumumab'.)