Insomnia in older adults: A review of treatment options

ABSTRACT

Insomnia is a common and challenging complaint in older adults (> 65 years) because of age-related alterations in sleep physiology. Cognitive behavioral therapy for insomnia is the gold standard for treatment of insomnia in young as well as older patients. Both clinicians and patients often prefer the simplicity of medication, but risks associated with some hypnotics increase with age. Pharmacologic options for older adults include low-dose doxepin, melatonin, ramelteon, and the dual orexin receptor antagonists. A well-informed clinician can help patients navigate the risks and benefits of both pharmacologic and behavioral options.

SLEEP, A PHYSIOLOGIC PROC
overall health.[1] The Natio
dation advises that adults 65 a
8 hours of sleep daily—a recom
on data that suggest older adult
6 to 9 hours daily have better h
life, and cognition compared w
who have other sleep duration

This article reviews the ph
and considers the benefits and
macologic and nonpharmaco
options in older patients.

INSOMNIA DEFINED

Insomnia is a disturbance in s

shift work, and cognitive impairment.[39]

CBTI may challenge physicians and patients

People with insomnia often have thinking errors (such as, "I am never going to sleep again") and nighttime worries that lead to autonomic hyperarousal and muscle or cognitive tension, all of which impair sleep.[6,40] They may have pessimistic and unhelpful thoughts and beliefs about sleep, and also tend to have erratic sleep schedules and "take their worries to bed." CBTI challenges dysfunctional beliefs about sleep, such as

cially in older adults. CBTI is a well-studied, safe, and efficacious treatment for insomnia in this age group. The drawbacks are that it is time-consuming to implement and not immediately effective. As sleep physiology is better understood, newly developed medications are providing safer alternatives, but they may be prohibitively expensive. Armed with a basic knowledge of sleep pathology, clinicians can consider the risks and benefits of both pharmacologic and behavioral options to safely restore sleep in the older adult population. ■

The consumption of sugar-sweetened beverages (SSBs) is associated with type 2 diabetes (T2D) and cardiovascular diseases (CVD). However, an updated and comprehensive assessment of the global burden attributable to SSBs remains scarce. Here we estimated SSB-attributable T2D and CVD burdens across 184 countries in 1990 and 2020 globally, regionally and nationally, incorporating data from the Global Dietary Database, jointly stratified by age, sex, educational attainment and urbanicity. In 2020, 2.2 million (95% uncertainty interval 2.0–2.3) new T2D cases and 1.2 million (95% uncertainty interval 1.1–1.3) new CVD cases were attributable to SSBs worldwide, representing 9.8% and 3.1%, respectively, of all incident cases. Globally, proportional SSB-attributable burdens were higher among men versus women, younger versus older adults, higher- versus lower-educated adults, and adults in urban versus rural areas. By world region, the highest SSB-attributable percentage burdens were in Latin America and the Caribbean (T2D: 24.4%; CVD: 11.3%) and sub-Saharan Africa (T2D: 21.5%; CVD: 10.5%). From 1990 to 2020, the largest proportional increases in SSB-attributable incident T2D and CVD cases were in sub-Saharan Africa (+8.8% and +4.4%, respectively). Our study highlights the countries and subpopulations most affected by cardiometabolic disease associated with SSB consumption, assisting in shaping effective policies and interventions to reduce these burdens globally.

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Association between Gamma-Glutamyl Transferase Levels and Pancreatobiliary Cancer Risk in Patients with Diabetes: Evidence from the National Health Insurance Cooperation Health Checkup 2009 to 2012

Ji Hye Heo[1,2], Jun Goo Kang[1], Kyungdo Han[3], Kyong Joo Lee[1]

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Background/Aims: Elevated gamma-glutamyl transferase (GGT) levels indicate hepatic dysfunction and have been linked to an increased risk of pancreatobiliary cancers. However, this association, particularly in individuals with diabetes mellitus (DM), requires elucidation. We aimed to examine the association between elevated serum GGT levels and pancreatobiliary cancer risk in patients with diabetes.
Methods: Our study included data from the National Health Insurance Service (NHIS) database for 2,459,966 adults aged >20 years diagnosed with DM between 2009 and 2012. We examined the association between serum GGT levels and pancreatobiliary cancer risk, considering DM-related factors. Serum GGT levels were categorized into quartiles, and Cox proportional hazards analysis was performed to evaluate the association between serum GGT levels and pancreatobiliary cancer risk.
Results: Over a median follow-up period of 7.2 years, 21,795 patients (0.89%) were newly diagnosed with pancreatobiliary cancer. The adjusted hazard ratio for pancreatobiliary cancer in quartiles 2–4 compared with that in quartile 1 was 1.091, 1.223, and 1.554, respectively, demonstrating a significant upward trend ($p<0.001$). This association remained consistent across all cancer types and was independent of the DM duration or treatment regimen.
Conclusions: Elevated serum GGT levels were independently associated with an increased risk of pancreatobiliary cancer, regardless of the duration of DM or the use of oral hypoglycemic agents and insulin. While these findings suggest the potential utility of serum GGT as a biomarker for identifying individuals at higher risk of pancreatobiliary cancer within the diabetic population, further research is needed to validate its clinical applicability.

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Burdens of type 2 diabetes and cardiovascular disease attributable to sugar-sweetened beverages in 184 countries

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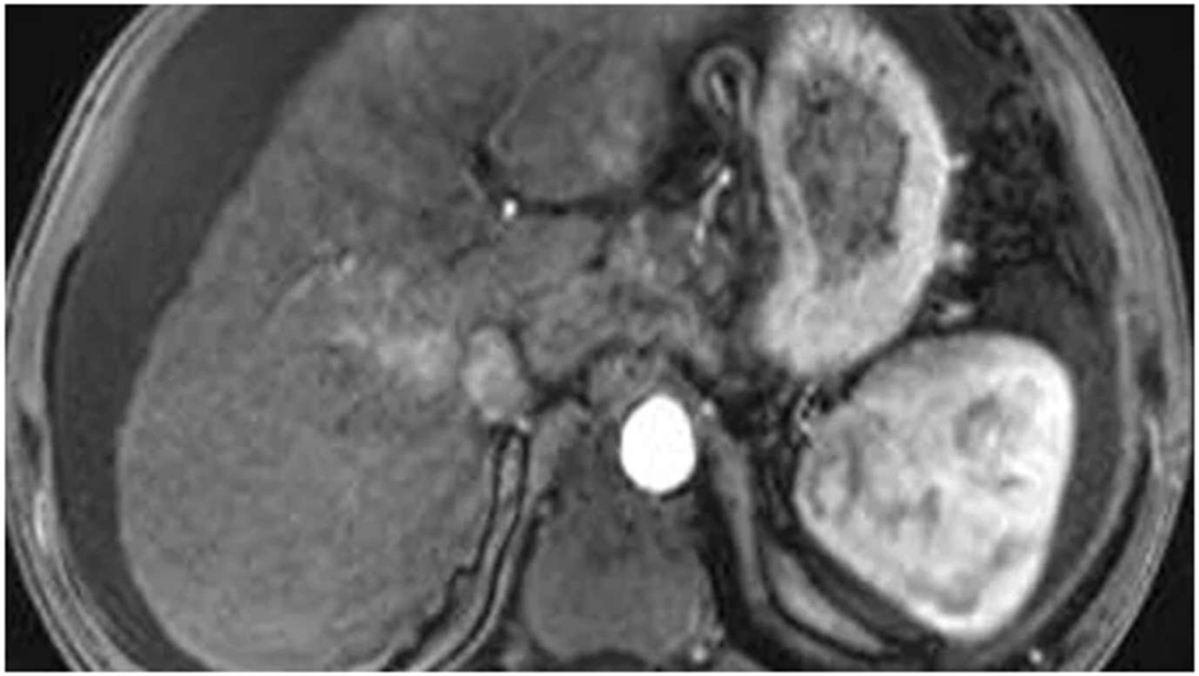
Abbreviated MRI protocols present suitable alternatives for liver cancer screening

Hannah Murphy | January 09, 2025 | Health Imaging | Magnetic Resonance Imag



Abbreviated MRI protocols could pose as a sufficient, potentially higher quality alternative to ultrasound when screening patients for hepatocellular carcinoma (HCC).

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Value of Abbreviated Magnetic Resonance Sequence in Hepatocellular Carcinoma Screening: A Systematic Review and Meta-analysis

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Advancements in non-invasive diagnosis of gastric cancer

Zhen Wang, Qi Wu

Abstract

Gastric cancer (GC), a multifaceted and highly aggressive malignancy, represents challenging healthcare burdens globally, with a high incidence and mortality rate. Although endoscopy, combined with histological examination, is the gold standard for GC diagnosis, its high cost, invasiveness, and specialized requirements hinder widespread use for screening. With the emergence of innovative technologies such as advanced imaging, liquid biopsy, and breath tests, the landscape of GC diagnosis is poised for radical transformation, becoming more accessible, less invasive, and more efficient. As the non-invasive diagnostic techniques continue to advance and undergo rigorous clinical validation, they hold the promise of significantly impacting patient outcomes, ultimately leading to better treatment results and improved quality of life for patients with GC.

ADVANCED IMAGING

Advanced imaging technologies have made significant strides in the diagnosis of GC, increasing the accuracy and precision of disease detection. These techniques leverage the latest advancements in medical imaging, allowing for earlier identification of cancerous lesions and improved assessment of tumor characteristics.

Computed tomography

With its high spatial resolution and ability to generate detailed cross-sectional images, computed tomography (CT) serves as the preferred imaging method for assessing tumor location, size and depth of invasion in GC patients[12,13]. The advancements in CT technology, including the introduction of multi-detector CT (MDCT) and dual-energy CT (DECT), have further enhanced its diagnostic capabilities[14,15]. MDCT allows for faster scanning speeds and thinner slice thicknesses, resulting in improved image quality and reduced motion artifacts[14,16]. DECT, on the other hand, provides additional information about tissue composition by acquiring images, enabling better distinguishing between normal and pathological tissues[15]. In the diagnosis of GC, CT is routinely used for staging, which is crucial for determining the appropriate treatment plan. CT can accurately depict the thickness of the gastric wall, the presence of ulceration or mass formation, and the extent of tumor invasion into adjacent structures. Furthermore, CT is highly effective in detecting lymph node enlargement, which is an important indicator of nodal metastasis.

Spectral CT (sCT), owing to its material decomposition ability, can quantify the iodine concentration within tumor tissue, which is a key aspect for evaluating tumor invasiveness, invasion depth, angiogenesis, and systemic treatment responsiveness[17,18]. A recent breakthrough in this field is the application of sCT-iodine mapping (IM) analysis for detecting human epidermal growth factor receptor 2 (HER2) expression, which is a crucial biomarker affecting treatment strategies and prognostic evaluation[19]. Zhang *et al*[19] conducted a comprehensive evaluation of 19 histogram-derived parameters from 101 GC patients who underwent preoperative sCT. Notably, the analysis revealed that HER2-positive tumors exhibited notably lower values for maximum, mean, standard deviation, variance, entropy, and percentile parameters compared to HER2-negative counterparts, reinforcing the potential of sCT-IM histogram analysis as a predictive tool. Moreover, the study underscores the clinical relevance of the Lauren classification and GC differentiation to HER2 status, highlighting the intricate interplay between histopathological features and tumor biology. Notably, the 99th percentile parameter emerged as the most discriminative and demonstrated the highest diagnostic performance (area under receiver-operating characteristic is 0.740), accompanied by a sensitivity of 76.2% and specificity of 65.0%. This

LIQUID BIOPSY

Liquid biopsy refers to the analysis of biological fluids, primarily blood, for the presence of tumor-derived biomarkers, including circulating tumor cells (CTCs), circulating tumor DNA (ctDNA), and exosomes[10,25]. These biomarkers can provide insights into tumor biology, monitor disease progression, and guide personalized therapy. The key advancements in liquid biopsy for GC diagnosis can be summarized as follows.

CTCs

CTCs originate from primary and metastatic cancerous lesions and play a pivotal role in disease progression by contributing to the formation of new distant metastases[26,27]. The commonly definition of CTCs is cells with a round or oval morphology, featuring a round or oval nucleus within the cytoplasm[28,29]. Morphologically, CTCs are classified into two categories: (1) Single CTCs; and (2) Clustered CTCs. Cancer metastasis typically occurs *via* clustered CTCs, prompting the use of clinical biomarkers such as tumor markers and radiological diagnostic features as surrogate markers for the detection of clustered CTCs[30]. Given that CTCs are typically present at less than one unit per milliliter of peripheral blood, detecting them requires methods with high sensitivity, specificity, and reproducibility. Techniques such as immunocytochemistry, RT-PCR, flow cytometry, and the semi-automated immunomagnetic separation system (CellSearch®) have been employed for CTCs detection. Notably, CellSearch® is the only CTCs isolation device currently approved by the United States Food and Drug Administration. Several studies have reported the clinical significance of CTCs in GC. For example, high levels of CTCs have been associated with poor treatment response, shorter overall survival, and increased disease aggressiveness[28,31]. However, the low abundance of CTCs in peripheral blood and the technical challenges associated with their isolation and characterization limit their widespread clinical application[25,28].

ctDNA

The ctDNA is fragmented DNA released from apoptotic or necrotic tumor cells into the bloodstream. The ctDNA exists in plasma or serum, exhibits multiple tumor-related molecular features, including single-nucleotide mutations, methylation changes, and tumor specific sequences[32]. Recent studies have demonstrated that integrating ctDNA with protein biomarkers can effectively screen for multiple cancer types, including GC, hepatocellular carcinoma and breast cancer[33-35]. At present, ctDNA offers a cost-effective and highly sensitive tool with potential clinical applications in the diagnosis of GC patients. First, it enables early cancer screening by detecting tumor-specific genetic alterations in blood samples, thereby facilitating early intervention and improving patient outcomes. Second, ctDNA analysis allows monitoring of treatment response, enabling physicians to adjust therapeutic strategies promptly in the event of treatment failure or drug

CONCLUSION

The advancement of non-invasive diagnostic techniques for GC is an important step in combating this deadly disease. Advanced imaging, liquid biopsy, and breath testing provide promising alternatives to traditional invasive methods, with the potential to improve early detection rates and provide information for personalized treatment strategies. With the continuous development and clinical validation of these technologies, we can expect to see significant improvements in patient prognosis, including earlier GC detection, more personalized treatment strategies, and better quality of life. Thus, further research should focus on improving and optimizing these non-invasive diagnostic tools, and exploring new biomarkers and technologies to further enhance their accuracy and sensitivity. Collaboration between researchers, clinical doctors, and industry partners is crucial to driving progress in this field and ultimately bringing the benefits of non-invasive GC diagnosis to patients worldwide.

THE END