CLINICAL NEWS | DIGITAL X-RAY

Opportunistic use of chest x-rays can help screen for osteoporosis

Will Morton
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Opportunistic use of chest x-rays may be feasible for identifying patients at risk of bone loss outside the traditional screening age, according to research published July 14 in the *Journal of Primary Care & Community Health*.

The finding is from a study that estimated the prevalence of "bone demineralization" on 390 x-rays from patients ages 50 to 65, and such application could be particularly useful in settings where dual-energy x-ray absorptiometry (DEXA) may not be readily available, noted lead author Naga Chinapuvvula, MD, of the University of Texas in Houston.

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Original Research

Opportunistic Use of Chest X-Ray for Identifying Older Adults at risk of Osteoporosis and not Meeting Criteria for Screening

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Introduction: Screening for osteoporosis is mainly done by measuring bone mineral density using dual-ene
X-ray absorptiometry (DXA) scan. Screening does not usually start until 65 years. Many people 50 to 65 y

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New artificial intelligence–based test detects early signs of osteoporosis from X-ray images

Peer-Reviewed Publication

Investigators have developed an artificial intelligence-assisted diagnostic system that can estimate bone mineral density in both the lumbar spine and the femur of the upper leg, based on X-ray images. The advance is described in a study published in the *Journal of Orthopaedic Research*.

A total of 1,454 X-ray images were analyzed using the scientists' system. Performance rates for the lumbar and femur of patients with bone density loss, or osteopenia, were 86.4% and 84.1%, respectively, in terms of sensitivity. The respective specificities were 80.4% and 76.3%. (Sensitivity reflected the ability of the test to correctly identify people with osteopenia, whereas specificity reflected its ability to correctly identify those without osteopenia). The test also had high sensitivity and specificity for categorizing patients with and without osteoporosis.

"Bone mineral density measurement is essential for screening and diagnosing osteoporosis, but limited access to diagnostic equipment means that millions of people worldwide may remain undiagnosed," said corresponding author Toru Moro, MD, PhD, of the University of Tokyo. "This AI system has the potential to transform routine clinical X-rays into a powerful tool for opportunistic screening, enabling earlier, broader, and more efficient detection of osteoporosis."

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Liver Health: An Emerging Concept

As a modern specialty, hepatology has mainly focused on improving diagnosis and management of liver diseases, with comparatively little effort dedicated to disease prevention. Only recently, coinciding with an increased awareness of the large burden that liver diseases represent worldwide and the development of noninvasive tools for early diagnosis of liver fibrosis, has there been an increasing attention paid to the importance of prevention of liver diseases.[1] Nonetheless, except for hepatitis B and C, there is still no structured strategy for liver health promotion and disease prevention.

In contrast, there have been important efforts for health promotion and disease prevention in other specialties, with cardiology being the best example. In this regard, the concept of cardiovascular health (CVH) was created approximately 15 years ago to help fight against CV diseases. The concept of CVH is based not only on the absence of

a method to evaluate and monitor LH in the population and to prevent disease. This could help reduce the heavy burden of chronic liver diseases (CLDs) in the world. The definition is proposed in the context of the LiverScreen Consortium, an EU-funded collaboration that includes 22 academic institutions aimed at evaluating the efficacy and feasibility of screening for liver fibrosis in the population.[6]

The Growing Importance of CLDs in the World

In recent years, it has become apparent that liver diseases constitute a major threat to public health worldwide. Overall, liver diseases are responsible for more than 2 million deaths annually (4% of all deaths, with 1 out of 3 deaths occurring in women) ,and cirrhosis is currently the 12th-leading cause of death in the world.[7] Liver diseases are also an important cause of disability-adjusted years and years of life lost.[1] Moreover, CLDs, of either viral or non-viral origin, are frequently complicated by liver cancer which also represents a substantial

Review

Early-Onset Gastrointestinal Cancers

A Review

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Abstract

Importance Early-onset gastrointestinal (GI) cancer is typically defined as GI cancer diagnosed in individuals younger than 50 years. The incidence of early-onset GI cancer is rising globally, and early-onset GI cancers represent the most rapidly increasing early-onset cancer in the US.

Observations Worldwide, among early-onset GI cancers reported in 2022, colorectal cancer (CRC) was the most common (54.3%; 184 709 cases), followed by gastric cancer (23.8%; 80 885 cases), esophageal cancer (13.2%; 45 056 cases), and pancreatic cancer (8.6%; 29 402 cases). In the US, among early-onset GI cancers reported in 2022, 20 805 individuals were diagnosed with early-onset CRC, 2689 with early-onset gastric, 2657 with early-onset pancreatic, and 875 with early-onset esophageal cancer. Most early-onset GI cancers are associated with modifiable risk factors including

Conclusions and Relevance Early-onset GI cancers, typically defined as cancer diagnosed in individuals younger than 50 years, are among the largest subset of early-onset cancers globally. Treatment is similar to later-onset GI cancers and typically involves a combination of chemotherapy, surgery, and radiation, depending on the cancer type and stage. The prognosis for patients with early-onset GI cancers is similar to or worse than that for patients with later-onset GI cancers, highlighting the need for improved methods of prevention and early detection.

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Preventive medicine

Screening strategies for colorectal cancer early detection

Julieta Alfonso

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nproving patient outcomes. The success of public health campaigns largely depends on the ccessibility of healthcare services and the active engagement of individuals who are at average risk. olorectal cancer (CRC) is a commonly diagnosed malignancy worldwide and represents a major ontributor to global cancer-related mortality. Screening strategies for CRC mainly consist of stool tests nd more invasive structural examinations such as colonoscopy, which can dissuade individuals from omplying with the recommended programs. In a recent article in the *The Lancet*, Castells et al. present ne results of the COLONPREV trial (NCT00906997), reporting that fecal immunochemical testing FIT) was non-inferior to colonoscopy screening for CRC-related mortality at 10 years.

he COLONPREV study was a multicenter, pragmatic, randomized, controlled trial conducted between 009 and 2021 across 15 tertiary hospitals in Spain, designed to assess whether invitation to FIT is non-nferior to colonoscopy in CRC screening, regarding CRC-related mortality at 10 years. A total of 7,404 presumptively healthy individuals aged 50–69 years were randomly assigned (1:1) and invited to articipate in either biennial FIT or a one-time colonoscopy. The intention-to-screen population included 6,719 and 26,332 individuals in the FIT and colonoscopy groups, respectively. The participation rate vas higher in the FIT group than the colonoscopy group (39.9% versus 31.8%), indicating greater

Review

JHEP|Repo

Prioritising viral hepatitis elimination to prevent hepatocellular carcinoma: A public health approach for effective preventive hepatology

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Jeffrey V. Lazarus[1,13,14,*]

Summary

Hepatocellular carcinoma (HCC) is the most common type of primary liver cancer, accounting for about 70-80% of cases globally. The hepatitis B and C viruses (HBV and HCV) account for approximately 70% of all HCC cases worldwide, with variation across geographic regions. While progress has been made in achieving some of the World Health Organization's viral hepatitis elimination targets set for 2030, considerable action is still needed to achieve global viral hepatitis elimination. Although numerous viral hepatitis prevention strategies, including vaccination against HBV, have proven successful, considerable gaps and challenges remain in their implementation. Likewise, monitoring for additional risk factors for HCC continues to be insufficient. This is particularly important given that the burden of viral hepatitis is further compounded by the high and rising prevalence of steatotic liver disease (formerly called fatty liver disease), a growing global concern and a major HCC driver. A more comprehensive approach to HCC prevention is critical and we propose an evolving narrative which emphasises an expanded understanding of "preventive hepatology" as a framework. Preventive hepatology recognises that the growing burden of liver cancer, mainly HCC, can be effectively addressed through the prevention and treatment of viral hepatitis, with additional, targeted preventive measures being applicable for populations at risk, through screening and surveillance. A more holistic approach to HCC prevention should include primary prevention strategies for the early detection and timely treatment of viral hepatitis and steatotic liver disease. It should also include HCC surveillance among people living with chronic viral hepatitis infection, particularly those living with cirrhosis, those cured of HCV, and the management of additional risk factors associated with other HCC aetiologies.

Conclusions

The field of hepatology should more explicitly recognise and draw attention to the importance of viral hepatitis prevention strategies, and timely diagnosis and expanded treatment, to reduce the burden of advanced liver disease, including HCC. This evolving narrative should include an expanded understanding of preventive hepatology as a framework for such a holistic, multi-stakeholder approach. Preventive hepatology recognises that the high and growing burden of HCC should be addressed through viral hepatitis prevention, in addition to early diagnosis and treatment. Preventive hepatology should include effective primary prevention strategies for viral hepatitis, such as universal HBV vaccination, alongside secondary and tertiary prevention, such as treatment of people living with a chronic viral hepatitis infection and HCC surveillance among people living with HBV and HCV. Other HCC aetiologies must also be addressed through the prevention and management of additional risk factors, such as overweight, obesity, poor diet quality, lack of physical activity, and alcohol consumption. Despite the evidence, and at a time when global viral hepatitis

THE END