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Non-invasive tests are helping fight liver disease in Southeast Asia

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As the rate of obesity rises in Southeast Asia and around the world, so too does the prevalence of liver disease, even among non-drinkers. Although viral hepatitis remains the most common cause of liver disease, the rapid increase of non-alcoholic fatty liver disease (NAFLD) cases is hardly insignificant. NAFLD, which has historically required an invasive procedure to diagnose, is insidious because those who drink little to no alcohol may not consider themselves at risk. And symptoms don't present until late in its development which limits treatment options and has a high rate of poor outcomes.

Worldwide, some 25% of people are affected by the collection of conditions known as NAFLD. An even more aggressive form of fatty liver disease, non-alcoholic steatohepatitis, known as NASH, can progress to cirrhosis and liver failure and affects some 6%-8% of the world's population. Its prevalence is expected to rise by 63% by 2030.

Obesity and diabetes are major risk factors for these conditions, and both are on the rise in Southeast Asia. In addition to obesity and diabetes, risk factors for NAFLD and NASH include hyperglycaemia and high levels of fats, particularly triglycerides, in the blood.

In Malaysia, for example, 19.7% of adults are obese and 30.4% are overweight, up from an obesity rate of 17.7% in 2017. Singapore has seen its obesity rate rise nearly two percentage points, to 10.5% in 2020 from 8.6% in 2013 and 2017. Even in Vietnam, where the obesity rate among adults is a relatively low 3%, 19 out of 100 children are overweight or obese, signalling a looming crisis.

While ignorance of the threat can contribute to delayed diagnosis, the fact that it requires a biopsy to identify liver scarring, known as fibrosis, and confirm the presence of NASH also represents an obstacle to timely treatment. Biopsies aren't nearly as accessible as blood tests, and their invasive nature means it's hard to use them to track the progress of the disease. They are also imprecise, sampling only a part of the liver.

NAFLD usually shows no signs or symptoms until late in its progress. When it does, these include fatigue and pain or discomfort in the abdomen. But it's not until NASH and the development of fibrosis that more noticeable symptoms, such as abdominal swelling, enlarged blood vessels beneath the skin surface, an enlarged spleen and jaundice, are present. As the fibrosis worsens in severity, it results in cirrhosis—the main complication of NASH. Between 5% and 12% of people with NASH progress to cirrhosis.

A new generation of blood tests, such as the Enhanced Liver Fibrosis (ELF™ Test developed by Siemens Healthineers, is now helping patients monitor their liver health much more regularly. Introduced in the U.S. in 2021, the ELF™ Test is the first blood test to be granted De Novo marketing authorization by the USFDA for prognosis in advanced fibrosis due to NASH. The test works by measuring three bloodborne indicators of fibrosis using a proprietary algorithm to predict the disease's progression. Fibrosis is the central component in disease progression. Hence, detecting and monitoring fibrosis is key for intervention and improved outcomes, which is what the ELF™ Test is designed to do. Markers for liver fibrosis are typically divided into indirect and direct markers. While other blood tests look for indirect markers, the ELF™ Test looks for direct markers, including Hyaluronic acid (HA), Procollagen III N-terminal peptide (PIIINP) and Tissue inhibitors of metalloproteinase 1 (TIMP-1). These individual biomarkers reflect integral extracellular matrix (ECM) components of dynamic fibrogenesis and fibrinolysis processes in real-time. This allows the ELF™ Test to be used as a prognostic marker to identify patients that are most at risk of progression to cirrhosis and liver-related events such as decompensation, cancer and even death.

Diagnosis lies at the heart of NAFLD care, not only to detect its presence but also its severity. Patients with mild cases of the disease, for example, are often inappropriately referred to secondary care for even more-invasive investigations.

On the other hand, patients who go undiagnosed often remain in primary care until complications of cirrhosis develop. These can include infections, liver cancer and a build-up of toxins in the brain, known as hepatic encephalopathy.

The addition of routine blood screenings to regular health checks can offer more precise information on NAFLD patients who may be at risk of disease progression and are most likely to benefit from referral to secondary care and appropriate interventions. Blood tests also offer broad access to testing, benefitting patients in more remote areas by providing information about their health that would otherwise require long and difficult travel.

Accuracy of diagnosis is as important as access. Even with a biopsy, accuracy is suboptimal. Combined with the invasive nature of the procedure and the risk that entails, diagnosis has remained a challenge on multiple fronts. The introduction of blood tests and other non-invasive tools such as imaging procedures, helps alleviate that.

Blood tests aren't a panacea. A healthy diet, plenty of exercise and managing one's weight make up the first line of defence in preventing NAFLD and NASH. But they are a welcome and important addition to the toolbox for managing one's liver health.