Hepatobiliary cancers in South America: disparity strikes

Hepatobiliary malignancies represent an important cause of death worldwide.[1] Mortality from these tumours occurs primarily due to late detection, which precludes potentially curative interventions. Currently, no reliable markers are available for early recognition and screening of hepatobiliary malignancies, leading to these tumours being detected at a late stage. This late detection is more evident in regions of the world with scarce access to modern diagnostic technology for the entire population. In this regard, South America exhibits a rather unique geopolitical dichotomy, with advanced health centres in major cities capable of providing most diagnostic and therapeutic options, including liver transplantation, but poor resources to deal with complex diagnostics in smaller cities and towns. It is in this setting where the need for biomarkers for early detection becomes vital, as they can help stratify patients to be shuttled from areas with poor resources to larger cities when necessary. Many hepatobiliary cancers occur in individuals with known risk factors (ie, cirrhosis, gallstones, or inflammatory bowel disease), making it easier to identify those who should be screened. In South America, these tumours have unique epidemiological characteristics compared with other parts of the world: hepatocellular carcinoma associated with hepatitis B occurs more frequently at an earlier age, and gallbladder cancer disproportionally affects Indigenous people in Chile and Peru.[2,3] Chile has the highest incidence of gallbladder cancer in the world.[4] Very little data are available on the epidemiology of cholangiocarcinoma in South America, yet with the high local frequency of liver flukes it is likely to represent a high burden of disease.

Currently, the diagnosis of hepatobiliary cancers relies on advanced imaging or invasive instrumentation. However, advances in the past 5 years that permit identification of exosomes in blood and identification of circulating tumour cells have led to the concept of the so-called liquid biopsy—the detection in blood of organ-specific markers originating from particular tumours.[5] With this in mind, investigators from Europe, North America, and South America formed the European South American Consortium to Assess Liver-Originated Neoplasia (ESCALON), funded by the EU Horizon 2020 mechanism. The main objective of this initiative is to develop a large South American biobank to identify biomarkers for early detection and diagnosis of hepatobiliary cancers. Specifically, looking at immune markers for hepatocellular carcinoma (a highly immunogenic tumour) and exosomes for cholangiocarcinoma and gallbladder cancer. The project's ultimate goal is to create a liquid link between high-risk individuals in small South American towns and the resources available for them in larger cities.

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Natural disasters pose a challenge for hepatitis elimination in Iran

In 2016, WHO adopted a global programme to eliminate viral hepatitis infections.[1] In parallel with actions against hepatitis B and C, elimination of hepatitis A and E are also on the agenda of this programme. New infections with hepatitis A and E viruses occur through the faecal–oral route, for which unsafe drinking water and poor sanitation are the primary risk factors. Improvements in sanitation and water supply systems are preventive strategies specified as part of the hepatitis elimination programme,[2] and vaccination against hepatitis A and E has been defined as a priority action by WHO.[2] Hepatitis A and E viruses are endemic pathogens in Iran,[3] a country that has been working towards the elimination of viral hepatitis for many years.[4] However, natural disasters pose a threat to elimination efforts.

The 2018 report of the *Lancet* Countdown on health and climate change[5] highlighted that small changes in climatic parameters fuel the transmissibility of waterborne infections. In this context, exposure to

†A full list of the ESCALON investigators is provided in the appendix.

See **Online** for appendix