Is DELFI An Oracle?

Statue from the the Delphi museum

A promising new cancer detection test is being tested at Johns Hopkins University. DELFI, which stands forDNA evaluation of fragments for early interception, detected 91% of cancer cases in a sample of 208 patients. DELFI would be more cost-effective than current cancer tests. DELFI is a blood test, also known as a “liquid biopsy”. The test uses artificial intelligence (AI) to identify unusual DNA structures floating in the blood sample. Current cancer-detecting blood tests identify cancer in one of two ways. They can find DNA sequence changes (mutations) known to be linked to cancer, or they can detect small chemical changes (methylation) found in cancer cells. DELFI is different in that it finds changes to the organization of DNA in the in cancer versus healthy cells. In healthy cells, DNA (found in the cell nucleus) is very organized. In cancer cells, the DNA is disorganized - like throwing clothes into a closet instead of hanging them up.

DELFI was used to detect breast, colorectal, lung, ovarian, pancreatic, gastric and bile duct cancer. In the work, Johns Hopkins collaborated with institutions in the United States, Netherlands, and Denmark. DNA fragments were obtained from 208 cancer patients (54 breast cancer patients, 27 colorectal patients, 12 lung cancer patients, 28 ovarian cancer patients, 34 pancreatic cancer patients, 27 gastric cancer patients, and 26 bile duct cancer patients). The DNA fragments were compared to DNA fragments from 215 healthy individuals. AI was used to identify the unusual DNA structures. In addition to finding the cancer, DELFI was able to identify the tissue in which breast, colon and lung cancers originated in up to 75% of patients tested. Out of 215 patients, DELFI inaccurately diagnosed cancer in four patients. More testing is required to confirm the reliability of the test, but DELFI shows great potential for early cancer detection and diagnosis.

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