# A 'game-changer' technology for cancer diagnosis

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Imagine being able to screen your blood for cancer, as we do now for blood sugar. Well, the day may not be too far off, say healthcare representatives referring to a technology called liquid biopsy, which is gaining ground across the world.

Often described as a "gamechanger"of sorts, this technology is anywhere from six months to two years away from becoming a screening tool globally, say professionals closely involved with it. And when that happens, it would mark a huge leap in preventive cancer care. It already plays a significant role in "personalised" treatment or targeted medicine (where just the cancer cells are killed), which marks the way ahead in cancer treatment.

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Though the concept of liquid biopsy has been around for several years, it has come into its own in recent times. Six months ago, Grail raised a jaw-dropping $1.1 billion in funds, say foreign media reports of the Silicon Valley start-up whose investors include Illumina, Johnson & Johnson, and Amazon founder Jeff Bezos.

Liquid biopsies are slowly gaining visibility in India, but doctors are tempering their optimism with some caution. Currently, traditional biopsies are used to diagnose cancer in an individual or to monitor if an ongoing treatment is working. But doctors are in no doubt about the "pathbreaking" potential of liquid biopsies.

A traditional biopsy is still the gold standard for diagnosis, but liquid biopsies are a breakthrough, says Tata Memorial Hospital's Professor of Medical Oncology Kumar Prabhash. Unlike a traditional biopsy, where tissue from a tumor is tested for cancer, in liquid biopsies the blood is tested for traces of cancer. This is excellent in monitoring treatment in patients who do not have enough tissue, he says. As the technology gets adopted, Prabhash cautions clinicians to first evaluate the published validation of these tests before using it.

Prabhash also points to the price challenge, as traditional biopsies cost about ₹8,000, while the new technology, which is still a supporting diagnosis, costs upto about ₹20,000. More indigenous companies need to get involved to bring prices down, he says.

## Refining to predict

Medical oncology and hematology expert Dr Purvish Parikh says the downstream processing in both procedures (traditional and liquid biopsy) is the same. Liquid biopsies support cancer treatment that is increasingly looking at what makes a cancer grow, but its downside is that it currently does not give the origin of the cancer, he explains.

Involved with bringing the new technology in India, Dr Ramesh Hariharan, Co-founder and Chief Executive Officer of Strand Life Sciences, explains that a tumor's DNA is released into the blood, no matter where the turmor is. And that's where a liquid biopsy scores through its almost non-invasive technique, not requiring a surgical procedure, which a traditional biopsy does. This allows it to be done repeatedly to monitor the treatment's impact.

Cancers don't announce themselves till, at times, a very advanced stage, and that becomes difficult to treat, says Hariharan. But since the tumour DNA gets released into the blood at an earlier stage , pre-symptom testing can be done, facilitating early treatment, he explains. In fact, data tested by them last year suggested that 30 to 50 per cent of all tumors show traces in the blood even in the early stages, he said. It can possibly pick up a cancer relapse months before a scan identifies it, he adds. And tests are under way to refine the technology to pick up details on the nature of cancer (its mutations), its place of origin and so on.

Sam Santosh, Chairman, MedGenome, says they launched their tests in India after validation studies done with Tata Memorial. And while liquid biopsies are not yet the final line of diagnosis, he points to global companies in this space looking at the possibilities of predictive testing.

Some voices caution that pre-symptom testing could create a scare, since the body creates cancers cells all the time and they get killed internally. The tests are expensive. And, once diagnosed, there needs to be supporting infrastructure to treat the patient.

MedGenome's Chief Operating Officer Dr VL Ramprasad says they are working to bring down the test cost. But accurate pre-emptive testing makes earlier treatment possible if required, he says, and that makes a difference in giving the patient a real shot at a quality life.