HealthManagement
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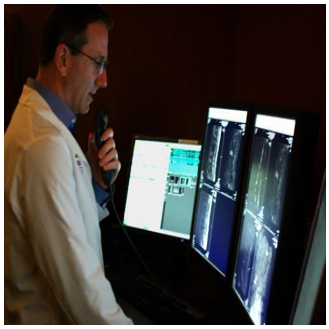
Innovations in Imaging Enabling Earlier Detection of Cancer



According to new analysis from Frost & Sullivan, advancement in oncologic imaging methods has facilitated early diagnosis and has reduced mortality and cancer management costs.

Oncologic imaging has shifted from invasive imaging to non- or minimally-invasive methods as well as real-time monitoring of tumours without damaging tissues. There has also been increased integration of oncologic imaging with other tools including in-vitro tissue analysis, biomarker tests and cancer screening. Molecular imaging for example involves a variety of imaging methods that enable in-vivo monitoring of cellular and molecular processes. It is expected that the discovery of contrast agents will further increase the effectiveness and efficacy of cancer imaging and detection.

The focus has been on developing technologies that can diagnose cancer at the cellular level. This enables clinicians to diagnose the disease before it manifests itself. Another area that is also emerging as ideal to aid cancer imaging is nanotechnology. Efforts are being made to develop nanoscale devices that can be conjugated with functional molecules to provide personalised cancer treatment.

Nanoprobes are 100 to 1000-fold smaller than cancer cells. They can be transferred easily through leaky blood vessels and can interact with targeted tumour specific proteins both on the surface and/or from inside the cancer cells.

Nucleic acid testing solutions, gene therapies and innovative imaging modalities have also contributed towards the advancement in oncologic imaging. Researchers have yet to apply these technologies optimally though, due to technical issues such as the need to qualify accurate markers for each type of cancer and to target the exact protein of DNA.

Several products have been launched by both private companies and universities and have been commercialised through partnerships. These include Philips Ingenia Magnetic Resonance Radiation Treatment (MR-RT), The Centre for Probe Development and Commercialisation's 18F-Fluoroazomycin Arabinoside (18F-FAZA), The University of Twente's Twente Photoacoustic Mammoscope (PAM) and Cancer Centre at John Hopkins' methylated biomarkers (cMethDNA).

However, scientists have yet to develop a single specific platform for the detection of cancer across all types. Developers need to ensure that the developed platforms comply with healthcare regulations and are cost-effective. Over the past few years, the industry has also introduced few cancer biomarkers that have demonstrated clinical utility but are not supported by evidence of benefit or accuracy in certain clinical settings.

Developmental and commercialising opportunities could be enhanced through public-private partnerships as they can increase research investments and maximise technology growth. There is thus a need to incorporate both traditional and non-healthcare disciplines into research on cancer management and treatment.

Source: Frost & Sullivan

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