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Novel imaging technologies are being deeply integrated into clinical trials

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Established in 2002, Teleradiology Solutions (TRS) is a global pioneer in remote radiology interpretation and telehealth. Headquartered in Bangalore â?? India, with offices and operations spanning USA, Singapore & Dubai, the company offers interpretation of all non-invasive imaging studies (CT, MRI, PET, Nuclear Medicine studies, Digitized X-rays, ECG, Angiography etc.), and 3-D reconstructions of CT scans.

Teleradiology Solutions (TRS) has recently entered into a partnership with Qure.ai, a healthcare AI provider, and Telerad Tech (T2), a global health IT company, to enable smarter and faster diagnoses of X-ray and CT-scan data, and reduce costs. Through this partnership, Qure.ai's chest X-ray technology will be integrated with Telerad Tech's proprietary platform – RADSpa that TRS uses to provide teleradiology services globally.

This integration is expected to go live in the next four months in several Indian states where TRS provides teleradiology services.

BioSpectrum got a chance to interact with Kishor Joshi, Global Head, Business Development, Image Core Labs (ICL), an affiliate of TRS, to find out more about the growth of medical imaging in India-

How has been the journey for ICL so far? Which are the key market segments ICL addresses?

ICL was incorporated in FY 2011/12 and in the initial years, it was primarily involved in building capacity in terms of technology. It developed its own software ClinSpa, a proprietary tool that captures all the various workflows required in a clinical trial scenario involving imaging as biomarker. The company has been growing at more than 200% year-on-year and currently has captured about 10% of the market, which is extremely fragmented, particularly in India.

ICL currently works with biopharmaceutical companies based in India, Israel, Singapore, and US for trials in oncology, and the musculoskeletal and cardiac space. Additionally, it also works extensively with global equipment manufacturers as part of their FDA submissions and quality programmes. ICL also works with Artificial Intelligence companies involved in radiology area across the US, Israel, and India. ICL is exploring opportunities in the CROs and biopharmaceutical segments in the EU and the US. It plans to add manpower and assets to grow to $5 million in the next 4 to 5 years.

How can medical imaging benefit areas such as drug development, medtech and clinical trials?

Imaging techniques are being used across different phases of drug development and oncological clinical trials. They help in providing evidence about the safety and efficacy of drugs, and aid in decision making. Conventional morphological imaging techniques and standardized response criteria based on tumour size measurements help define key study endpoints. On the other hand, non-invasive imaging techniques such as computed tomography (CT), magnetic resonance imaging (MRI) and fluorodeoxyglucose (FDG) positron emission tomography (PET)/CT help in generating primary, secondary, and exploratory study endpoints.

'Centralized' imaging data is being used as a primary endpoint in several trials. It is also used in the early-phase of trials that have less logistical challenges, are dynamic, require more scientific research and study structuring, and better image-relying protocol. The use of imaging also helps meet regulatory requirements in the late phase of trials by streamlining operation workflow. Novel imaging technologies are being deeply integrated into clinical trials across biotech, pharma, and medical device development processes.

What are the challenges in adopting medical imaging in the area of drug discovery?

One of the primary challenges is the absence of advanced imaging technologies across geographies which makes site selection for multicentre and multigeographic studies difficult. Second is the lack of high-speed internet connection and corresponding software. This makes uploading of documents and modifications in compliance with 21 CFR Part 11 tougher. As a result, the timeline and quality of research are adversely affected.

Apart from this, there could be delays due to complex protocols needed for study set-up and other conditions of using imaging as a clinical trial primary endpoint. Then there is the additional cost incurred due to the introduction of imaging and creation of core laboratories. In some cases, there may be reluctance to adopt imaging as a biomarker because it is perceived to be qualitative and therefore imprecise. Privacy and security concerns due to imaging systems being connected to cloud computing services is also something that cannot be ignored. The differences in the reader being used by various physicians may stand in the way of correct reading and/or evaluation/assessment.

What newer trends can be brought about by medical imaging?

Artificial intelligence, 3D printing, wearable devices, and IoT are already an integral part of medical imaging. These will become more mature in the times to come. Integrating technology and eHealth solutions for better clinical efficiencies and health outcomes and leveraging big data for better diagnosis and patient journey are some of the major future trends foreseen.