IIT-I develops eRespirocare for early diagnosis of lung diseases

OUR STAFF REPORTER
Indore

Making a significant contribution to healthcare sector, an inter-disciplinary team of researchers at Indian Institute of Technology, Indore has developed an intelligent, low-cost and easy to use digital auscultation based integrated diagnostic system which provides a seamless connect between patients in rural areas and specialist doctors, for an early diagnosis of lung-related diseases.

The prototype has been named as eRespirocare.

"Early screening and diagnosis of symptomatic cases through eRespirocare will not only help in timely detection and initiation of treatment but will also result in significant reduction in morbidity and mortality due to respiratory diseases," said a press release issued by IIT Indore on Thursday.

In many far-flung areas, the barefoot doctor, an Accredited Social Health Activist (ASHA), is a source of medical care and the need for a smart device facilitating a remote access of doctor to a patient is a necessity.

"eRespirocare uses digital auscultation coupled with information technology (IT) platform and artificial intelligence (AI) based machine learning approaches."

INTEGRATED DIAGNOSTIC SYSTEM

EASY: Useful for ASHA workers with minimal training, skill enhancement

DIGITAL: Auscultation measurement in the form of a waveform

INTELLIGENT: Decision making based on machine learning algorithm

REMOTE: Seamless connect of rural areas to specialist for diagnosis and monitoring through mobile application

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"It reduces the subjectivity involved in the conventional stethoscope based auscultation and subsequent analysis," IIT Indore media coordinator Rahul Sharma said.

The technology being developed provides the much needed seamless medical connect to remote and rural areas to facilitate easy, intelligent and affordable diagnosis, while utilising IT platform and AI techniques to aid diagnosis and initiation of the treatment by a medical practitioner.. It also provides a unique, continuous and comprehensive care through stored auscultation data of individual patients which can be immensely useful in future follow-up of patients with chronic lung diseases.

"The test results of auscultation data captured through eRespirocare have been very encouraging as the medical condition of volunteers could be accurately correlated with clinical diagnosis," Sharma said.

ASHA workers in villages can be easily trained to capture digital auscultation through eRespirocare and share the same with a specialist medical doctor along with relevant history of illness, thereby acting as an interface between the community in remote areas and medical experts, who are distantly available in referral hospitals for an early detection of lung-related diseases.

The specialist medical doctor can not only listen to the auscultation data of a patient, but also clinically correlate the outcomes of the machine learning algorithms with other symptoms recorded by the local doctor or ASHA worker.

"eRespirocare, while supporting pre- and post-medication auscultation monitoring, inclusively benefits patients, doctors, ASHA workers in villages and primary health centres," Sharma said.