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Technology streamlining diabetes management in India

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Diabetes is one of the most widespread lifestyle diseases affecting people globally. In a recent study in the Annals of Epidemiology, Elsevier, it was concluded that diabetes has risen sharply in India in the last couple decades both in urban and rural populations across all age groups (20-99 years) and gender demographic.

India has the second largest population of diabetics with 76 million people suffering currently. By 2025, 10% of the population is likely to be affected by diabetes.

Pain-points & solutions

Close monitoring of blood sugar requires uncomfortable blood draws and needle pricks. Continuous glucose monitoring (CGM), a compact medical equipment consisting of a small sensor, which needs to be changed every 10-14 days, inserted on the abdomen or upper arm to take readings from interstitial fluid in real time and a monitor to display results, is capable of ameliorating this discomfort.

Instead of fingerpricking, patients can simply scan the sensor to receive results. Some CGM devices have a smartphone app and some allow patients to add caregivers to the data stream. The real time results can notify patients of impending hypoglycaemia. CGM also effectively eliminates fingerstick testing and is capable of identifying nightly fluctuations, storing data, help reducing HbA1C levels and maintaining a healthy blood glucose range.

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The major companies involved in the Indian CGM market include Abbott, Medtronic., Dexcom etc. to name a few. For instance, the Abbott Freestyle Libre device was recently launched in India and has quickly gained popularity amongst Type 1 and Type 2 Diabetes patients. By 2021, Abbott is primed to launch their software to collate the data on smart devices.

Advent of digital apps has simplified diabetes management and control. The primarily used apps can be grouped under glucose tracker apps, blood glucose knowledge apps and calorie tracker and exercise apps. The adoption of digital diabetes monitoring solutions is anticipated to rise at a CAGR of 21% by 2027.

Technologically healthy- The emergence of health apps

Several startups in India are using deep learning and artificial intelligence to track diabetes patients' status, provide diet plans, and offer specialist advice.

HealthifyMe, Bengaluru, established in 2012, works on lifestyle diseases. With conversational artificial intelligence (AI), Ria, capable of answering nutritional queries by combining technological prowess and advice from professionals, suggests diet routines to better manage diabetes.

Artelus, 2015, based in Bengaluru, USA and Dubai, uses a deep-learning, AI powered algorithm, DRISTi to allow early detection of diabetic retinopathy from high-powered images of the patients' retina.

BeatO, based in Delhi, established in 2015, provides smart diet options by identifying the patients' glycaemic index and suggesting proper food items.

Oburculum, founded in 2016 in Chennai, is a unique app that uses AI on genomic data to swiftly diagnose disease like diabetes, cancer and neurological disease with surprising efficiency and prevent delay.

ChironX, 2017, headquartered in Gurugram, detects retinal disorders associated with diabetes by analysing retinal fundus images with an accuracy of more than 95%.

Wellthy Therapeutics, based in Mumbai and Bengaluru, is bringing affordable disease management to patients with readily available nutritionists, fitness coaches and counsellors to guide them into preventing, managing and even reversing chronic conditions.

Artificial intelligence-based healthcare has received much impetus in India in recent years. Bridging the gap between patients and doctors and making healthcare affordable for people across all income strata has been the basic motive for developing AI-based solutions. The market might be prepared for AI technologies but there are several impediments ahead, most importantly, data security. AI-based healthcare services require collection of data from previous studies which must be

protected to prevent misuse and identity theft.

Pancreas on silicon

Scientists from Harvard University in the US are attempting to develop Islet chips to study beta cells of the pancreas that produce insulin. Islet chips are microchips that monitor whether the donated or manufactured beta cells are capable of normal functioning and insulin release. Diabetes mellitus directly results from insulin desensitization of the body. Pancreas beta cells can be transplanted but that does not ensure their functionality. Islet chips can help determine this before transplant. Although this technology is at the nascent stage, it presents an exciting prospect on the road towards reduction and eventual eradication of diabetes.

Enormous strides have been made to merge our lives with technology, enabling us to simplify life in every possible way. Healthcare is a significant part of daily routines, especially for those with chronic diseases such as diabetes. Monitoring apps, AI-based technology, etc. are making healthcare more streamlined and convenient for patients as well as caregivers.

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