

No more multiple insulin jabs

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In what may open up a new management technique for millions of diabetics, a Bangalore-based scientist has discovered a novel way to do away with multiple insulin injections for scores of patients.

Instead, one injection of a new pro-drug every 10 days – may be once a month – would be good enough to take care of the patient's need for insulin, a pancreatic hormone, for those many days, said **Bangalore-based Indian Institute of Science professor Avadesh Surolia** who, along with his students, developed the new insulin-delivery molecule.

They call it a pro-drug or a supra-molecular insulin assembly (SIA).

It's like a big blob in which many insulin molecules are grouped together in a specific folding pattern.

In its experimental stage, when injected in mice, it released small amounts of insulin continuously for 120 days. For humans, the scientists first plan to develop an SIA that can release the insulin for 10 days. Its capacity will then be enhanced for 30 days.

“It means, once realised, SIA will do away with multiple daily insulin injections. The patient requires to take insulin injection once in a month,” Surolia, who currently heads the National Institute of Immunology here, told Deccan Herald over phone.

In a multi-million dollar deal the technology was transferred to San Diego-based firm, Lifesciences Pharmaceuticals, that will further develop the molecule for human applications and carry out the clinical trials. However, it is still many years away from the market.

Discovered almost 100 years ago, insulin is still one of the trusted and most-used medicines to keep the blood glucose level within a limit. But the fear of pricking oneself multiple times a day generally leads to low patient compliance.

Since insulin is generally taken after meals, its effect weathers away late in the night, sometimes creating problems for patients early in the morning. “On one hand, SIA reduces the number of injections and can take care of fasting hyperglycemia,” Surolia said.

The SIA is stable inside the body and does not show any side-effects in animal models.

The trick behind sustained release of insulin comes from packing up insulin molecules in a way so that they are slowly released in the blood. For rats, 200 micrograms were released daily for four months. The human dosage could be tailored accordingly.

The insulin assembly can be folded in three specific ways. While SIA-I is meant for bulk release of the drug in a short period, SIA-III releases even tinier amount of the drug over a very long period. It is the SIA-II that has potential for human use. The findings on SIA will soon be published in the prestigious Proceedings of the National Academy of Sciences.