

**Can we finally eradicate tuberculosis?**

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Madam, tuberculosis (TB), remains the leading cause of death from single infectious agent, particularly in developing countries like Pakistan. According to WHO Global TB report 2018, it is among the top ten killers, with 1.3 million deaths in 2017. Pakistan is among the 8 countries mentioned, with a significant prevalence 5%.<sup>1</sup>

Claiming lives of more than 3500 people per day,<sup>1</sup> poor socio-economic status, unavailability of health care facilities, non-affordability of drugs and low awareness hinder the eradication of this deadly infection. However, inadequate medication adherence is the most notifiable, and interestingly also a world-wide problem with diseases that have a complex and prolonged regime. TB comes with a massive pill burden on the patient, precisely 3.3g of antibiotics per day with the resultant non-compliance, treatment failure and emergence of multi drug resistant strains.<sup>2</sup>

Despite multiple efforts towards improving drug adherence, including direct observation therapy (DOT), unremarkable achievement has been made in creating innovative ways to deliver the drugs in a manner that is not only efficacious but also minimizes the intake frequency.<sup>3</sup> Recently, Malvika and colleagues have been successful in achieving this long-hoped goal. Their novel work comprises a technology that will allow the extended release of medication, improving adherence to the lengthy and repeated dosing regimens of TB.<sup>2</sup>

The gastro retentive delivery system's (GRS) basic structure consists of a coiled wire inside a tubing, around

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which drug pills are strung, that can be released up to four weeks. Moreover, the device can safely be placed and retrieved via the nasogastric (NG) tube. Performed in pigs due to close resemblance to human guts, no complications were reported during the experiments.<sup>1</sup> The safety and efficacy of GRS still requires confirmation in humans and to determine the influence of diet on the pharmacokinetics of the broad array of drugs administered simultaneously.

Nevertheless, preference of this technique by the patients over multiple and frequent oral drug intake, and with majority of doctors skilled in NG tube placement, as reported by Malvika et al, has also proven how we can easily employ this technique to effectively treat and possibly eradicate TB.<sup>2</sup> Further research is crucial to make this process economical, safe and easily accessible to all. GRS can potentially be a vital key for maximizing a patient's adherence in eradication of TB, especially in third world countries with frequent epidemics and possibly other diseases that demand regular and strict medication regimes.

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