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Learning from COVID-19 to tackle TB pandemic: From despair to hope

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The world is emerging from a catastrophic pandemic of COVID-19 caused by SARS-CoV-2. Though COVID-19 had a devastating effect on global health compounded by emergence of new Variants of Concern,[1] there is an opportunity to learn from this pandemic to deal with other emerging diseases as well as epidemics of concern like Tuberculosis (TB). Due to debilitating effects on health infrastructure, India witnessed a massive reduction of 41% in case notifications in 2020 and alarmingly still contributed to 38% of global burden with 13% increase in TB related mortality.[2]

Prior to COVID-19, almost 35% TB cases were missed every year either due to lack of sensitive and affordable diagnostics or poor health implementation policies. COVID-19 mediated lockdowns further fueled the reduction in access to care and led to an estimated 4 million undiagnosed TB cases.[3] These missed cases could lead to a calamitous surge if not diagnosed and notified well in time. There has been no breakthrough in affordable and sensitive diagnostics for TB detection, particularly for high disease burden and low-income countries. The reluctance in financial investments for development of new interventions due to poor returns on investment by pharma industries has further contributed to this failure. A recently developed affordable fluorescent microscope could be vital for sensitive diagnosis in the above scenario.[4] Furthermore, a set of molecular sequences from TB specific genes, validated to have improved sensitivity, could be a value addition for development of affordable diagnostics.[5] The affordable and portable LFA (Lateral Flow Assay) or dipstick based ultra-sensitive tests that could be easily employed in remote settings along with rational triage tests would be helpful in curbing TB. The introduction of bidirectional screening for TB and COVID-19, telemedicine for routine diagnosis, extensive community campaigns, doorstep sample collection and uninterrupted supply of drugs are required. FIND enabled provision of rapid screening at TB hotspots along with Joint Effort for Elimination of Tuberculosis (JEET) to sensitise private health sector regarding COVID-19 and TB, will be pivotal mitigation measures to halt unbridled TB transmission.[6] The digital apps, such as 'Arogya Setu' in India, for contact tracing and risk assessment could be assigned to include other communicable infections like TB. Self-detection kits, as employed for COVID-19, portable digital X-rays and AI based interpretation along with analytical algorithms to predict hotspots and possible contacts could turn the tide against TB and save millions of lives.[7]

We witnessed an extraordinary scientific pursuit for development of vaccines against COVID-19. The pace of validation and overlapping clinical trials were exemplary and have created new paradigms for other infectious diseases. TB research has lagged in this approach majorly due to low investments and apathy possibly due to notion of this being a disease affecting poorer strata of the population and lack of economic dividends. TB prevention still relies on the century old vaccine i.e., BCG, though many other candidates are at various stages of clinical development.[8] Some recent reports of modifying BCG vaccine or the route of administration have rekindled the interest in researchers but large-scale trials are warranted that involves substantial expenditure.[9] Investment in TB vaccine development (US$ 100 Million) is barely a fraction of the fund allocated for COVID-19 (>US$ 100 Billion). We are apprehensive of such scale of funding for TB research and policymakers need to be cautioned by sustained public health campaigns regarding the catastrophic consequences of ignoring TB. Another concerning issue India is facing is the staggering share of 31% to the global burden by childhood TB that are yet to be vaccinated against COVID-19. Emerging reports of COVID-19 clusters in school-children demand urgent implementation of vaccination as recommended by CDC for children 5 years and above. The burgeoning threat of antimicrobial resistance, more so for MDR-TB and XDR-TB could be halted by innovative decision making.[10] The innovations in vaccine development and delivery and overcoming the vaccine inequity faced by underdeveloped nations, if

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successfully leveraged for TB, will be a quantum leap for designing efficacious vaccines.

Finally, with the post pandemic world being more interconnected and digitalized, real-time sequencing data could be made available to researchers for developing better interventions and dashboard data analytics to policymakers for aligning the resources and strengthening the healthcare system. Refinement of disease models to calibrate the impact of sociodemographic correlates like overcrowding and restricted movement in lockdowns along with increased awareness about respiratory hygiene is warranted. Nevertheless, social determinants like poverty and the stigma associated with airborne communicable diseases need to be addressed at war footings to achieve End TB goal by 2035.

Contributors

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Declaration of interests

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