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New options in Tuberculosis Care: Visions for the future are crucial for controlling the disease

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ABSTRACT

New scientific approaches are necessary: The current strategies for controlling tuberculosis (TB) are not sufficient. Improved prophylactic and diagnostic tools are imperative, being crucial for decreasing TB incidence and mortality and for preventing outbreaks. Furthermore, new and better drugs are badly needed, particularly considering the increase in cases with multidrug-resistant strains. The current TB vaccine—the Bacillus Calmette–Guérin vaccine—has a preventive impact on disseminated TB in children, but little effect on the most common form of TB, that is, lung TB in adults and young adults. For many years extensive scientific efforts have been made in order to develop new vaccines against TB that are better and more effective than Bacillus Calmette–Guérin. No such vaccine exists, however, to date. During the last few years it has become increasingly clear that TB patients can be infected with more than one strain and that a previous TB infection increases rather than decreases the risk for getting a new one. *Mycobacterium tuberculosis* organisms are thus not capable of inducing protective immunity to such an extent that a new TB infection is prevented. This phenomenon highlights the problems of developing effective vaccines against TB. A new TB vaccine based on general immunological protection models would in all probability only have a limited capacity to hamper TB incidence and mortality. The question whether or not it is feasible to make a vaccine of sufficient efficacy must therefore be discussed. Prophylaxis is practically always far better than therapy and we all wish we had an effective TB vaccine. However, considering the problems with vaccines, scientific efforts could well focus on developing new therapies rather than new vaccines. New scientific approaches are highly necessary and we need ideas and visions. Some examples of recent projects will hereby be presented. One study concerns the mycobacterial cell envelope and its unique macromolecules as targets for new drugs. Another study concerns new ways of administrating the drugs which could enhance the effects of new as well as of already available drugs. In addition, what can be learnt from cancer therapy—is supporting the patient's own defense by immune modularly methods a possible approach? We also need to look back since ample knowledge on TB has been assembled during many years. Unfortunately some of this valuable knowledge is about to be forgotten, particularly, the experience from the time when TB was an incurable disease.

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