



Medical Studies

Needle-free injection--science fiction or comeback of an almost forgotten drug delivery system?.



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[Needle-free injection--science fiction or comeback of an almost forgotten drug delivery system?].

[Article in German]

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Abstract

The first to create a "needle-free injector" was the American anesthetist Robert A. Hingson, 65 year ago. Since that time those devices underwent a changeful history. In 1986 an outbreak of hepatitis B among patients receiving injections from a needle-free multiple-use-nozzle injector was documented and related to the use of the injector device. Due to such risk of transmission of infection with these reusable devices, their application has been restricted. In 1998 the WHO recommended that only conventional needles and syringes should be used for immunization until safe needle-free injectors are identified through independent safety testing. Since needle-free injection has shown numerous advantages in comparison to conventional injection, new systems were developed that combine the advantages of needle-free injection with sufficient safety in mass vaccination programs. As an alternative to this early injector type, the disposable-cartridge injectors were developed. The newest research field in the area of the needle-free injection systems opened with the development of powder injectors, in which the drug preparation is no longer a suspension or solution, but a powdered solid. This injector type using powder formulations shows a number of advantages in comparison with the conventional needle/syringe injection technique as well as towards the liquid jet injectors. Due to this new kind of injectors the comeback of the needle-free injection technique in large-scale vaccination programs of the WHO seems reasonable and within reach.

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