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Rectal alternatives to existing oral and injectable pediatric antibiotherapies: Going beyond a wax suppository

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According to recent World Health Organization reports, bacterial infections still take a heavy morbidity and mortality toll on the lives of children, particularly those under 5 years of age, and particularly in developing countries. Against this scenario, there is a lack of paediatric formulations of antibiotics that are adapted to the needs of the developing world, where these infections are mostly prevalent. Formulations are needed that can be administered by unqualified personnel (non-injectable) to children who cannot take oral medications (non-per-os) because their conditions are deteriorating. Pharmaceutical development of rectal forms has gone far beyond the common fatty suppository and offers solutions for successful rectal delivery even in rural tropical zones, where fatty suppositories melt and are not administrable. This work shows, that rectal route can be considered as a valuable alternative for specific applications, such as pediatric antibiotherapy in developing countries. Several forms were considered and tested for azithromycin and ceftriaxone, namely PEG solid dispersion suppositories, gels, suspensions, self emulsifying drug delivery systems (SEDDS), grain or powder in hard gelatin capsules and rectodispersible tablets. The aim of this development was to propose a low cost prototype formulation of rectal pediatric antibiotherapy, ready for industrial scale-up. The selection of formulations was based on their feasibility, stability in ICH conditions and their bioavailability. Solid dispersion PEG suppository appeared to be the optimal formulation of azithromycin and solid forms appeared promising for ceftriaxone.

Biography

Tina Kauss (PharmD at University of Bordeaux and Master 2 of Pharmaceutical technology and Biopharmacy at University Paris 11) completed her PhD in 2007 at Bordeaux's University, followed by 3 years of postdoctoral studies in pharmaceutical development (pharmaceutical technology, biopharmacy and analytical chemistry). Since 2011 she is assistant professor of Pharmaceutical technology and Biopharmacy at the University of Bordeaux. She has published 16 papers in reputed journals of pharmaceutical development.

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