

Ethambutol in paediatric tuberculosis: aspects of ethambutol serum concentration, efficacy and toxicity in children.

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SETTING: Ethambutol (EMB) is used as a fourth drug in paediatric anti-tuberculosis treatment. In current recommendations the dosage of EMB is calculated per kg body weight. **OBJECTIVE:** To present two studies investigating an appropriate EMB dosage in children, and observational data on its toxicity and efficacy. **DESIGN:** EMB serum levels in children of different age groups were determined after single oral administration of EMB alone as well as after EMB combined with rifampicin, and optimal dosages were established. The efficacy and toxicity of these EMB dosages were examined retrospectively. **RESULTS:** EMB serum levels were lower than those expected in adults receiving a similar oral dose, due to different pharmacokinetics and pharmacodynamics in childhood. Thereafter, children were treated with EMB doses calculated by body surface (867mg/m²). Ocular toxicity occurred in 0.7% of cases and relapses in 0.8%. **CONCLUSION:** Current recommended EMB dosages in childhood tuberculosis lead to subtherapeutic serum levels. It appears to be more valid to calculate the EMB dosage on the basis of body surface rather than body weight, leading to higher dosages especially in younger children. With these dosages, therapeutic serum levels are reached in all age groups, leading to a high efficacy of anti-tuberculosis treatment without increased ocular toxicity.

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