Impact of malnutrition on the pharmacokinetics of chemotherapy in children with cancer: a systematic review

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Abstract

Objectives This systematic review provides an overview of the effect of malnutrition on the pharmacokinetics of chemotherapy in children with cancer. *Methods* PubMed, Embase and Cochrane were searched to identify eligible studies. Malnutrition was referred to as undernutrition, as defined by the World Health Organisation and the Gomez Criteria. *Results* Four studies with a total of 668 children with cancer were included and n=121 (18%) were malnourished. In vincristine, the differences in pharmacokinetic parameters were statistically significant where clearance rates were commonly lower and area under the curve was increased in malnourished children. *Conclusion* The results are suggestive for pharmacokinetic alterations of chemotherapy in malnourished children with cancer. However, the data is scarce, groups are small, and most studies have been performed in high-income countries. Pharmacokinetic research among (severely) malnourished children with cancer is needed in order to improve their outcome, directed by sub-group and ultimately individualized drug dosing.

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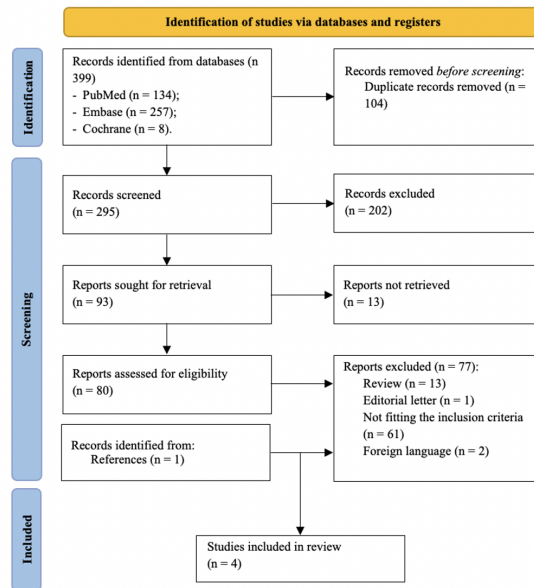
FIGURE 1 PRISMA flow chart describing the screening process and identification of relevant studies for this review [21].