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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Identification	Records identified from databases (n 399) - PubMed (n = 134); - Embase (n = 257); - Cochrane (n = 8).	Records removed <i>before screening</i> : Duplicate records removed (n = 104)
	Records screened (n = 295)	Records excluded (n = 202)
Screening	Reports sought for retrieval (n = 93)	Reports not retrieved (n = 13)
	Reports assessed for eligibility (n = 80)	Reports excluded (n = 77): Review (n = 13) Editorial letter (n = 1) Not fitting the inclusion criteria
	Records identified from: References (n = 1)	(n = 61) Foreign language (n = 2)
Included	Studies included in r (n = 4)	eview

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