



COMPLIANCE ANALYSIS OF PEDIATRIC ANTICANCER DRUG DOSING

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Background and importance

Optimal dose of anticancer drugs is the one that produces maximum antitumor effect associated with an acceptable level of toxicity. Low dose will be ineffective against cancer, while high dose will produce intolerable toxicity especially for children.

Aim and objectives

The purpose of this study is to evaluate and analyze the compliance of dosages, related to children anticancer drugs under or overdose at children hospital and also define the interventions made by the hospital pharmacist.

Material and methods

It is a retrospective study based on the recalculation of doses of 270 prescriptions of cytotoxic drugs, extracted from 100 chemotherapy protocols in the pediatric hemato-oncology department of Rabat.

Results

- ❑ The most anticancer drugs used are vincristine 21,5%, cyclophosphamide 14,4%, mercaptopurine 10%, methotrexate 7,8%, etoposide 6,7%, and other drugs represent 39,6%.
- ❑ Out of 270 recalculated doses of anticancer drugs, 67.8% were compliant, 27.4% were underdosed and 4.8% were overdosed.
- ❑ 45.1% of deviation cases were not justified, 33.3% of the doses were rounded off, 9.6% represents the maximum that can be administered, 8.6% was calculated according to the weight not by the body surface, in 3.2% children were in denutrition.
- ❑ Concerning the recorded underdoses, the maximum deviation noted was 47.3% with an average of 14.7% compared to therapeutic dose. For the overdoses, the maximum deviation was 41.6% with an average of 4% compared to therapeutic dose.
- ❑ Based on the number of drugs with anomalies, the most underdosed drugs are cyclophosphamide 17.5% followed by vincristine 16.2% then etoposide 13.5%. On the other hand, the most overdosed are mercaptopurine with 23% followed by methotrexate with 15.3%.
- ❑ Based on the average deviation between prescribed and therapeutic doses, the most underdosed drugs are high-dose methotrexate 35%, mercaptopurine 28%, Adriamycin 26%. whereas the most overdosed drugs are vincristine 42%, mercaptopurine 9%, high-dose methotrexate 6%.
- ❑ The interventions made by pharmacists in case of dose deviations were recalculate the prescribed doses and inform the prescribing physician either to detect a possible error of overdosing in order to correct it or to look for the reason of underdosing if it is not mentioned on the chemotherapy preparation sheet.

Conclusion

According to the results, almost half of the anomalies are unjustified, hence the importance of pharmaceutical validation of Chemotherapy orders and dose compliance verification by the hospital pharmacist to better manage anticancer drugs risks.

Keywords

Chemotherapy / Dose / Compliance / Children