Pharmacokinetics of chemotherapeutic agents in children’s oncology

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON25390

Source
NTR

Brief title
PINOCCHIO-study

Health condition

Cancer

Sponsors and support

Primary sponsor: Princess Maxima Center for pediatric oncology
Source(s) of monetary or material Support: NA

Intervention

Outcome measures

Primary outcome

The primary objective of this study is to assess the pharmacokinetics of various cytotoxic agents (carboplatin, cisplatin, cytarabine, dactinomycin, daunorubicin, doxorubicin, etoposide, methotrexate and vincristine) and their known metabolites (if applicable) in children to characterize the age-related changes in pharmacokinetics.

Secondary outcome

- To determine the influence of overweight and obesitas (for cut off points for BMI, see table 4 in Cole et al, 200053) on the pharmacokinetics of carboplatin, cisplatin, cytarabine, dactinomycin, daunorubicin, doxorubicin, etoposide, methotrexate and vincristine and their known metabolites (if applicable) in pediatric patients (0-17 years).
- To correlate pharmacokinetics of pediatric patients with clinical and laboratory toxicity.

Study description

Background summary

Rationale: Little is known about the PK of the various classes of chemotherapy in children. Insight in the PK of the various classes of chemotherapy in children and, especially, in infants may result in improved dosing guidelines and/or individualized dosing regimens based on therapeutic drug monitoring, ultimately resulting in better clinical outcome. The aim is that future dosing of children with cancer will be evidence-based, as a result of the population PK data that will be generated with this project. As the projects covers several different chemotherapeutic drugs, the results will be highly relevant, as it will optimize the regimen in total, instead of only studying one single drug.

Objective: To assess the pharmacokinetics of various cytotoxic agents (carboplatin, cisplatin, cytarabine, dactinomycin, daunorubicin, doxorubicin, etoposide, methotrexate and vincristine) and their known metabolites (if applicable) in children to characterize the age-related changes in pharmacokinetics.

Study design: Prospective observational study

Study population: Patients aged 0-17 years treated in the PMC who will receive intravenously administered carboplatin, cisplatin, cytarabine, dactinomycin, daunorubicin, doxorubicin, etoposide, methotrexate or vincristine, that all have a present central line to sample blood for pharmacokinetics.

Main study parameters/endpoints: Pharmacokinetic parameters (i.e. clearance and volume of distribution) will be assessed using non-linear mixed effects modelling (NONMEM). Influence of relevant co-variates will be assessed by standard model building methods.

Nature and extent of the burden and risks associated with participation, benefit and group relatedness: The patient has no direct benefit from participating in this study. The data obtained in this study will be used to assess the population PK of various classes of chemotherapeutic agents in children and infants with cancer. The only consequence of study participation is that additional blood samples (maximum of 8 samples of 1 ml once or twice) will be withdrawn. The here applied sampling strategy is minimally invasive, since all the patients that are included already have a central line. The volume of blood that is withdrawn

for the study does not exceed the recommended maximum. Sampling, using a flexible time scheme, will only be requested during regular hospital visits.

Study objective

Thus, insight in the PK of the various classes of chemotherapy in children and, especially, in infants may result in improved dosing guidelines and/or individualized dosing regimens based on therapeutic drug monitoring, ultimately resulting in better clinical outcome. The aim is that future dosing of children with cancer will be evidence-based, as a result of the population PK data that will be generated with this project. As the projects covers several different chemotherapeutic drugs, the results will be highly relevant, as it will optimize the regimen in total, instead of only studying one single drug.

Study design

START of the study: 01-02-2019
END of the study: 01-02-2022

Contacts

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Eligibility criteria

Inclusion criteria

1. Planned to receive carboplatin, cisplatin, cytarabine, dactinomycin, daunorubicin, doxorubicin, etoposide, methotrexate or vincristine intravenously as regular treatment (standard of care);
2. Age ≤18 years;
3. Informed consent form (ICF) signed prior to participation in the study;

4. A present central line to sample blood for pharmacokinetics

Exclusion criteria

1. Down syndrome;
2. For fertile adolescent girls: pregnancy (orally inquired, a test is not necessary);
3. Any other disease/circumstances that may influence the participation of the subject in a negative way

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	01-02-2019
Enrollment:	270
Type:	Anticipated

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Positive opinion

Date:	15-02-2019
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 55747
Bron: ToetsingOnline
Titel:

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL7527
CCMO	NL63037.078.18
OMON	NL-OMON55747

Study results