

Pharmacokinetic variation and toxicity in Ewing's sarcoma

Submission date 14/01/2014	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 25/02/2014	Overall study status Ongoing	☐ Statistical analysis plan ☐ Results
Last Edited 18/12/2025	Condition category Cancer	☐ Individual participant data ☒ Record updated in last year

Plain English summary of protocol

<https://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial/a-study-looking-at-blood-levels-of-chemotherapy-drugs-in-people-with-ewings-sarcoma-pk201301>

Contact information

Type(s)

Scientific

Contact name

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Contact details

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Additional identifiers

Clinical Trials Information System (CTIS)

2013-000052-17

Protocol serial number

PK 2013 01

Study information

Scientific Title

Pilot study to investigate the early prediction of toxicity following induction chemotherapy in Ewing's sarcoma by blood-borne biomarkers and correlation with age-dependent pharmacokinetic variation

Study objectives

The main objective behind this study is to test the hypothesis that the variation seen in the exposure to vincristine, ifosfamide, cyclophosphamide, doxorubicin and etoposide in patients is related to the age of the patient (children, adolescents and adults). This may explain differences in toxicity and/or survival response to these drugs.

Ethics approval required

Old ethics approval format

Ethics approval(s)

National Research Ethics Service committee North East - Newcastle and North Tyneside 1, 07/10/2013, Ref: 13/NE/0225

Primary study design

Observational

Study design

Five-year observational pharmacology study

Study type(s)

Diagnostic

Health condition(s) or problem(s) studied

Ewing's sarcoma

Interventions

The study will involve 120 male and female Ewing's sarcoma patients recruited at 20 clinical cancer centres across the UK. Participation will be over a five-year period.

Blood sampling for pharmacokinetic studies will taken over a maximum period of 24 h or 54 h depending on the treatment arm. Blood sampling for biomarkers will be collected on 4 separate study days. Patients will be followed up clinically for a period of 3 years.

Intervention Type

Other

Primary outcome(s)

1. To establish pharmacokinetic profiles for vincristine, ifosfamide, doxorubicin, etoposide and cyclophosphamide in adolescent Ewing's sarcoma patients and to compare profiles between children, adolescents and adults. Pharmacokinetic measurements will be performed on one course of treatment using established methods for the measurement of vincristine, ifosfamide, doxorubicin, etoposide and cyclophosphamide by liquid chromatography/mass spectrometry (LC/MS).

2. To validate in young people a panel of blood-borne biomarkers which have been shown to be predictive of bone marrow and mucosal toxicity in adults. Blood samples for biomarker analysis will be taken on cycles 1, 2 and the last cycle of induction chemotherapy. M30 and M65 ELISA assays will be performed as biomarkers for mucosal toxicity. The FLT 3 ligand assay will be performed as a biomarker for bone marrow toxicity.

Key secondary outcome(s)

1. To examine polymorphisms associated with drug metabolism and identify loci associated with the major acute and late toxicities associated with VIDE or VDC/IE chemotherapy.
2. To investigate potential relationships between pharmacokinetics, biomarkers of toxicity and pharmacogenetics in Ewing's sarcoma patients.

A single blood sample for pharmacogenetic analysis taken prior to the first course of VIDE or VDC/IE treatment, will be used to investigate whether genetic variation in the expression of key enzymes could underlie individual differences in drug metabolism and exposure.

Completion date

31/12/2026

Eligibility

Key inclusion criteria

1. Age 0 - 24 years
2. Diagnosis of histologically confirmed Ewing sarcoma
3. Receiving VIDE or VDC/IE as part of standard clinical treatment
4. Single or double lumen central venous catheter in place
5. Written informed consent
6. Protocol approval by national and local ethics committee, regulatory authority and Trust R&D Departments

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Mixed

Lower age limit

0 Years

Upper age limit

24 Years

Sex

All

Total final enrolment

139

Key exclusion criteria

1. Receiving nonstandard dose chemotherapy.
2. Glomerular filtration rate <60 ml/min/1.73m².

Date of first enrolment

01/02/2014

Date of final enrolment

20/11/2020

Locations**Countries of recruitment**

United Kingdom

England

Study participating centre

Northern Institute for Cancer Research

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Newcastle upon Tyne

England

NE2 4HH

Sponsor information**Organisation**

The Newcastle Upon Tyne Hospitals NHS Foundation Trust (UK)

ROR

<https://ror.org/05p40t847>

Funder(s)**Funder type**

Charity

Funder Name

Cancer Research UK (C27826/A15994)

Alternative Name(s)

CR_UK, Cancer Research UK - London, Cancer Research UK (CRUK), CRUK

Funding Body Type

Private sector organisation

Funding Body Subtype

Other non-profit organizations

Location

United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be available upon request from Professor Gareth Veal (g.veal@nhs.net).

Participants have not given consent for sharing of data – therefore, only selected anonymised individual participant data that underlie the results reported in the article will be available. The trial protocol will also be available.

Data will be available following article publication.

Only investigators whose proposed use of the data has been approved by an independent review committee will be granted access to the data via ‘password protected’ documents sent to an individual email account. Proposals shall be directed to Professor Gareth Veal. To gain access requestors will need to sign a data access agreement.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Plain English results			26/06/2025	No	Yes