

Effect of chemotherapy and ionising radiation on sperm nuclear and mitochondrial DNA: Can pre-treatment with GnRH Agonists reverse these effects?

Submission date 30/09/2005	Recruitment status No longer recruiting	☐ Prospectively registered
Registration date 30/09/2005	Overall study status Completed	☐ Protocol
Last Edited 13/03/2014	Condition category Urological and Genital Diseases	☐ Statistical analysis plan
		☐ Results
		☐ Individual participant data
		☐ Record updated in last year

Plain English summary of protocol

Not provided at time of registration

Contact information

Type(s)

Scientific

Contact name

Dr P Mahendra

Contact details

Clinical Haematology
Queen Elizabeth Hospital
Birmingham
United Kingdom
B15 2TH

Additional identifiers

Protocol serial number

N0265055944

Study information

Scientific Title

Study objectives

1. To examine whether chemotherapy/radiotherapy induced azoospermia/severe oligozoospermia can be reduced or prevented by 'down-regulation' of the pituitary using GnRH agonists.
2. If partial or complete gonadal protection is conferred by GnRH, will the sperm subsequently produced be damaged genetically?
3. If previously impaired sperm production in (due to the nature of the malignancy) improve post protective treatment with GnRHA?
4. To examine the effects of chemotherapeutic agents on sperm nuclear and mitochondrial DNA and the induction of apoptosis.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Not provided at time of registration

Primary study design

Interventional

Study design

Randomised controlled trial

Study type(s)

Not Specified

Health condition(s) or problem(s) studied

Urological and Genital Diseases

Interventions

The investigations will comprise the following:

Sperm Storage

Immediately on referral, patients will be given the opportunity to have spermatozoa cryopreserved at the ACU, Birmingham Women's Hospital. Briefly, after a full semen analysis (see below) and completion of relevant documentation, an equal amount of cryoprotectant media is added to the semen over a period of 10-15 minutes. Vials are then suspended in liquid nitrogen vapour.

Semen Analysis

Full semen analysis, including sperm concentration; motility; morphology; antisperm antibodies. vitality are carried out in accordance with the World Health organisation (WHO, 1992). Computer assisted sperm motility analysis (CASA) will also be performed, using an Hamilton Thorn IVOS (version 8.1).(Tomlinson Ct al, 1993).

Blood tests

Bloods for serum FSH and testosterone will be taken at the time of semen analyses.

Sperm nuclear DNA (nDNA) and mitochondrial DNA (mtDNA)

Sperm nuclear DNA Damage will be assessed using the TUNEL assay or using the sperm nuclear

cliromatin integrity analysed using the Chromomycin A3 fluorochrome (Manicardi et al, 1995; 1998) Mitochondrial DNA fragmentation will be studied using long PCR according to the methods of St.John, (in press).

Mitochondrial Function

Mitochondrial membrane potential will be assessed using the fluorescent probe D1Oc6 counterstained with propidium iodide for sperm viability according to the methods Zamzami et al (1996).

Samples

Samples will be assessed immediately after referral from the oncology centres. A second sample will be assessed 3 months later and then again at 6 months.

All the above mentioned techniques have been developed and validated and are in current use in our laboratories.

Intervention Type

Other

Phase

Not Specified

Primary outcome(s)

Not provided at time of registration

Key secondary outcome(s)

Not provided at time of registration

Completion date

01/01/2007

Eligibility

Key inclusion criteria

Patients will be referred from tertiary referral centres in Birmingham. These will include principally the Queen Elizabeth Hospital in Edgbaston, Selly Oak Hospital and the Dept of Haematology, Heartlands Hospital. They will have been referred for sperm storage to prior to chemo or radiotherapy mainly in cases of malignant disease but also in other conditions e.g. treatment of nephrotic syndrome. Patients will be randomised to treatment groups at the point of intention to treat.

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

Male

Key exclusion criteria

Not provided at time of registration

Date of first enrolment

01/10/2003

Date of final enrolment

01/01/2007

Locations**Countries of recruitment**

United Kingdom

England

Study participating centre**Clinical Haematology**

Birmingham

United Kingdom

B15 2TH

Sponsor information**Organisation**

Department of Health

Funder(s)**Funder type**

Government

Funder Name

University Hospital Birmingham NHS Trust (UK)

Funder Name

Research Funds

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not provided at time of registration