

# 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

☐ Protocol

**Registration date**

30/09/2005

**Overall study status**

Completed

☐ Statistical analysis plan

☐ Results

**Last Edited**

13/03/2014

**Condition category**

Urological and Genital Diseases

☐ 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**

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**Contact details**

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## Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

**Secondary identifying numbers**

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

### Study design

Randomised controlled trial

### Primary study design

Interventional

### Secondary study design

Randomised controlled trial

### Study setting(s)

Hospital

### Study type(s)

Not Specified

### Participant information sheet

### 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 measure**

Not provided at time of registration

#### **Secondary outcome measures**

Not provided at time of registration

#### **Overall study start date**

01/10/2003

#### **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

**Age group**

Adult

**Sex**

Male

**Target number of participants**

Not provided at time of registration

**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**

England

United Kingdom

**Study participating centre**

Clinical Haematology

Birmingham

United Kingdom

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**Sponsor information****Organisation**

Department of Health

**Sponsor details**

Richmond House  
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United Kingdom  
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+44 (0)20 7307 2622  
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**Sponsor type**

Government

**Website**

<http://www.dh.gov.uk/Home/fs/en>

**Funder(s)****Funder type**

Government

**Funder Name**

University Hospital Birmingham NHS Trust (UK)

**Funder Name**

Research Funds

**Results and Publications****Publication and dissemination plan**

Not provided at time of registration

**Intention to publish date****Individual participant data (IPD) sharing plan****IPD sharing plan summary**

Not provided at time of registration