



ON THE CRYOPRESERVATION OF PREPUBERTAL TESTICULAR TISSUE

INFO-PREPUB-E

INFORMATION for the referring doctor

Male gametes are sensitive to chemo- and radiotherapy. Chemotherapy can destroy or severely reduce spermatogenesis and thereby jeopardize fertility in the long term. There is still no medical treatment that guarantees fertility preservation. Gamete banking is the only method to prevent sterility.

Before puberty, boys do not produce spermatozoa and therefore sperm banking is not feasible. They only harbour stem cells in their testes.

Testicular tissue of young prepubertal and pubertal boys, who are due to receive intensive chemotherapy and radiotherapy, can be cryopreserved. In this way, theoretically, fertility can be preserved until the patients are cured from disease. Hopefully, in a few years from now, these patients might be able to produce spermatozoa after autologous transplantation of their cryopreserved testicular tissue.

At the Centrum voor Reproductieve Geneeskunde (CRG or Centre for Reproductive Medicine) of UZ Brussel a multidisciplinary team is researching aspects related to cryopreservation and the culture of testicular tissue aimed at preserving fertility in young male cancer patients.

Procedure

Before banking, the patient and his parents need to be counselled by a paediatrician and oncologist to correctly assess the risk of permanent sterility following cancer treatment. They should also be counselled about the experimental character of the testis banking programme. An information sheet and informed consent can be downloaded from our website (click here for Dutch, French or English). Tissue can only be stored at UZ Brussel when we have received this consent form, signed by both parents, in due course. It can be faxed to +32 2 477 66 49.

Before any tissue banking, please contact

- > Prof. Dr. H. Tournaye,
email: tournaye@uzbrussel.be, telephone +32 2 477 66 99, or
- > the testicular stem cell research lab,
telephone +32 2 477 46 44, or
- > the testicular tissue bank,
telephone +32 2 477 66 52.

The removal of testicular tissue can be performed at UZ Brussel or at the patient's institution when a surgeon is available on-site. Whether the patients' condition will permit testicular tissue collection should be evaluated with the operative surgeon and anaesthesiologist. Preferably, testicular tissue sampling is done before any start of cancer treatment. The procedure can be combined with the placement of an intravascular device (Porth-a-cath) to reduce the number of anaesthesia.

Either a unilateral orchidectomy will be performed or a testicular biopsy will be taken. This decision has to be taken both by the oncologist and the surgeon. In both cases the surgical procedure should be as gentle as possible for the tissue.

Logistics

1. A testicular tissue preservation request can be done by phone, fax or e-mail (see above). If the biopsy surgery is done *extra-muros* (outside UZ Brussel),
 - > the UZ Brussel biologists should be informed at least 72 hours before the procedure in order to organise the testicular tissue collection and storage under ideal circumstances;
 - > the time period between the collection and the storage of testicular tissue should be as short as possible. Ideally the time between tissue removal and the preparation of the tissue for freezing should not be longer than 4 hours. Hence transport should be organised before the surgical procedure;
 - > testicular tissue is best transported in a sterile container containing Hepes buffered Dulbecco's modified Eagle's medium. Transport is best done on melting ice (4°C).
2. A written agreement for testicular tissue collection is necessary from the patient or from both parents of the young boy. The information file and signed consent forms (click here for Dutch, French or English) should be duly filled in and faxed to Prof. Dr. H. Tournaye before the start of the biopsy procedure (fax +32 2 477 66 49).
3. The original signed informed consent form will be kept by the CRG.



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4. According to safety regulations information should be provided on the patient's serological profile (HIV, Hepatitis, CMV); if this information is not available at the time of testicular tissue collection, a serum sample of the patient (5 ml) should be drawn during the biopsy procedure.

5. If surgery is to be performed at UZ Brussel, the patient should be referred to Prof. Dr. Tournaye. All appointments can be arranged by calling +32 2 477 66 99.

The total stay at UZ Brussel hospital will be limited to one day. However, a preliminary appointment with the anaesthetist will take place in the week before surgery.

Reception of testicular tissue

Ideally, the biopsied testicular tissue should immediately be completely immersed in a sterile isotonic buffer solution (pH 7.2 – 7.6) at 4° C until further preparation.

Testicular tissue that has not been transported as requested by the laboratory (e.g. non sterile, dried out, damaged, not on melting ice, deep frozen, leaky container) or when no prior appointment was made for tissue intake will be refused.

Further processing needs sterile conditions (Laminar flow) for preparation of the testicular tissue. The dissected tissue needs an equilibration time in a cryoprotectant before the programmed freezing procedure. The tissues will be banked in liquid nitrogen at the CRG of UZ Brussel.

Financial aspects

- > If the surgical procedure is done at UZ Brussel the costs of the biopsy procedure under general anaesthesia are reimbursed as stipulated by the appropriate RIZIV-codes.
- > For storage of the testicular tissues there are actually no supplementary costs as the technique is still considered a research procedure.

Contacts

> Responsible Clinician

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> Contact cryopreservation

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