Chirec
Cancer Institute

News n°9
November 2013

EDITORIAL

The frequency of breast cancer in Belgium is amongst the highest in Europe. Not only is it the most common cancer in women, accounting for over a third of all cancers. It is also responsible for the most cancer-related deaths in women, after lung cancer. Fortunately, screening is being carried out earlier than ever, which obviously significantly increases the chances of recovery. Continuous progress in treatment is also being seen, particularly with the development of more targeted and personalised therapies.

These advances are also the result of a unique collaboration between all the professionals involved, who meet and update their knowledge, such as in March 2011 at the Congress of St Gallen (Switzerland), or right now at ASCO (Chicago, USA).

The management of breast cancer continues to improve every day, not only because of the international developments mentioned above, but also because of the fact that the Belgian public authorities introduced legislation for cancer care and breast clinic programmes.

From diagnosis to treatment and follow-up, the patient's treatment lasts several years and they must be assured of a decent quality of life, with the best experts and the best equipment. CHIREC is a large breast-cancer screening and treatment centre. Recently approved by the Ministry of Health, on the basis of strict criteria-based European recommendations, our "Breast Clinic" meets the demanding criteria that reassure patients and their families.

This Newsletter no. 9 is dedicated to breast cancer. General physicians, specialists, patients and visitors at CHIREC will find short summary articles, original testimonies and links to reference sites.

Multidisciplinarity is the key to better therapeutic attitudes, decided collectively in our "Multidisciplinary Oncological Consultations", or MOCs. Here, the range of healthcare expertise available to patients is apparent: radio-breast specialists, breast surgeons, gynaecologists, radiotherapists, medical oncologists, pathologists, nuclear physicians, plastic surgeons, as well as physiotherapists, psychologists, dieticians, and all the different nursing teams. Our goal is quality, not only in the medicine that we practice, but also and especially in receiving our patients and in humane and personalised care.

Pr. Thierry VELU
Director of the Chirec Cancer Institute

Version française pages 1 à 24
Nederlandse versie pagina 25-48
English version verso

FACING BREAST CANCER TOGETHER

The Breast Clinic

The Breast Clinic is a multidisciplinary healthcare centre for patients with breast disease based on screening, diagnosis, treatment, monitoring and rehabilitation.

Ideally, the centre works in a unit of time, place and action. This is defined by the Royal Decree of April 26, 2007, published in the Belgian Official Gazette of July 20, 2007 and brought into force on January 1, 2008. This Royal Decree is based on EUSOMA European standards (European Society of Mastology).

The CHIREC Breast Clinic received official approval from the COCOM on January 25. This approval is renewable and is related to compliance with certain qualitative and quantitative criteria, including the supervision of medical staff, nurses and paramedics.

- For example, a nurse coordinator plays a key role in the reception of patients by facilitating their relationship with the medical and paramedical staff, and their access to the hospital structures.
- A healthcare plan is offered with the assurance of impeccable medical-surgical, psycho-oncological and rehabilitative care.
- Each new patient should be able to obtain an appointment within five working days, a histological diagnosis within five working days, and be taken into surgery or given neoadjuvant treatment within two weeks after diagnosis.
- A minimum of 150 new cases of breast cancer should be treated annually in the centre from 2010.
- A Multidisciplinary Oncology Consultation (MOC) meeting must be held once a week.
- Our goal is to put patients at the centre of the Breast Clinic for humane and personalised quality management.

Dr Jean Claude Massart
Coordinator of the CHIREC Breast Clinic

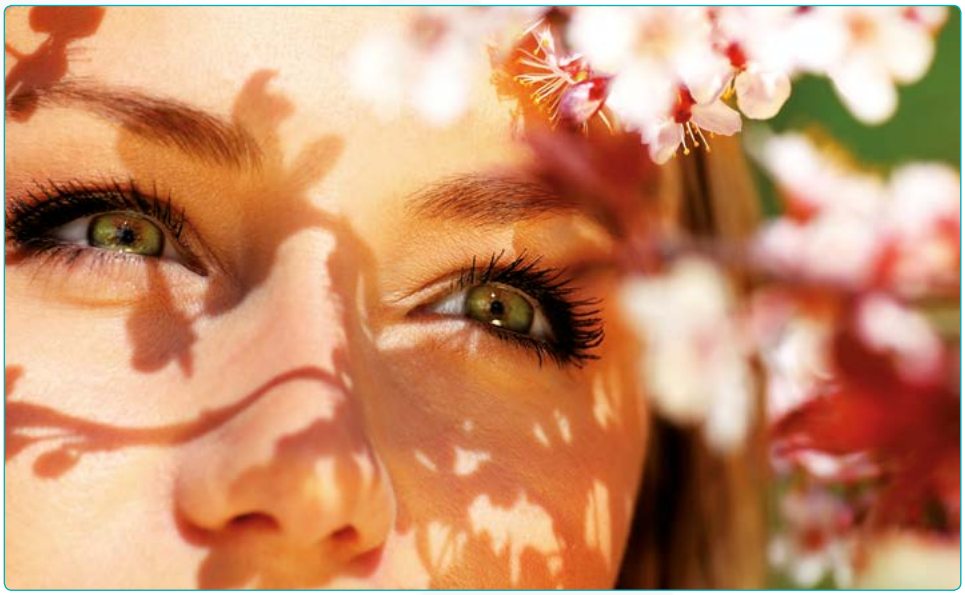

Photo Thinstock©

NOVEMBER 14TH, 2013
OPENING OF A BREAST CLINIC AT THE CHIREC CANCER INSTITUTE
CITY CLINIC CHIREC LOUISE, AVENUE LOUISE 235, BRUSSELS
IN ADDITION TO THE OTHER CHIREC'S SITES

FACING BREAST CANCER TOGETHER

FURTHER DEVELOPMENTS IN THE BREAST CLINIC

The Chirec Cancer Institute Breast Clinic inaugurates the new premises at 235 Avenue Louise in Brussels.

All specialists are available by appointment in a single place specially dedicated to the care of breast pathology: breast surgeons and plastic surgeons, gynaecologists, breast specialists, medical oncologists, radiotherapists and other care support including psychologists and experts in integrative medicine and cosmetology.

Chirec
Clinique du Sein

cityclinic
CHIREC LOUISE
My medical choice

	Breast care report Mammography & Ultrasound	Direct numbers Breast Clinic
Edith CAVELL Clinic	0032 (0)2 340 41 71	0032 (0)2 340 46 76
LOUISE Breast Clinic	0032 (0)2 434 20 00	0032 (0)2 340 46 76
BRAINE L'ALLEUD Hospital	0032 (0)2 389 03 44	0032 (0)2 386 17 76
PARC LEOPOLD Clinic	0032 (0)2 287 51 50	0032 (0)2 287 57 83
STE ANNE ST REMI Clinic	0032 (0)2 434 30 75	0032 (0)2 434 37 45
BASILIQUE New Clinic	0032 (0)2 422 42 40	
EUROPE LAMBERMONT Centre	0032 (0)2 240 60 60	

Our specialists in breast surgery, and gynaecological and pelvic surgery

- CAVELL & LOUISE
  - Marc Arens
  - Jean-Pierre Claes
  - Patrick Colart
  - Thierry Hubert
  - Isidore Kram
  - Jean Lecart
  - Pierre Ley
  - Sonia Lejeune
  - Jean-Frédéric Limbosch
  - Jean-Claude Massart
  - Jean Vankerkem
- BRAINE L'ALLEUD - WATERLOO
  - Alain Busine
  - Patrick Colart
- PARC LEOPOLD
  - Marc Arens
  - Jean-Pierre Claes
  - Jean Lecart
- SARE
  - Ludovic de Buijl
  - Nathalie Derny
  - Bruno Vandermeersch

CHIREC CANCER INSTITUTE BREAST CLINIC IN PRACTICE...

• You wish to have a breast-screening mammography and/or an ultrasound.

Contact your doctor or your gynaecologist who will request an examination. You can then make an appointment directly with the Breast Care Unit at the numbers above. If you do not have an appointment, or the date proposed is too long a wait, telephone the Breast Clinic directly at the numbers above.

• You have a concern about your breasts.

Contact your doctor or gynaecologist. If you do not get the information you need, please contact the numbers here:
We will put you in touch with the most appropriate specialist.

• You have breast pathology and you would like a second opinion.

Whether you have a surgical, medical or first-line problem, whether you need breast reconstruction or even physiotherapy or psychological help, contact us and you will be directed to the most appropriate people to ensure the best support.

• You have cancer and want comprehensive and personalised care at the Breast Clinic.

We will give you the name and contact details of our specialists who can propose optimal and personalised care.

• You have cancer and your gynaecologist works at the Chirec.

Rest assured... at the Chirec you will benefit from comprehensive and personalised care from the beginning to the end of your treatment. Each patient's situation is discussed in the **Multidisciplinary Oncology Consultation before starting any treatment** to ensure optimal management of the condition.

• You have just been diagnosed with breast cancer and you want some quick answers to your questions
• or : you have been operated on for breast cancer in the Chirec or another institution and want to see one of our experts as soon as possible.

Call the contact numbers and we will set up an appointment for you within a very short space of time

• You have a post-operative problem.

• During the day: ask the nurse coordinator
• At night: emergency department - upon arrival at the emergency department of the institution where you underwent your operation, your surgeon will be notified personally to optimise your immediate care.

Breast Clinic of the Chirec Cancer Institute
Approved by the Health Directorate – Cocom, Belgium
Member of the European SenoNetwork

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FACING BREAST CANCER TOGETHER

CHIREC CANCER INSTITUTE BREAST CLINIC IN PRACTICE...

CERTIFICATION

The official certification of our Breast Clinic by the Minister guarantees that it meets high-level quality criteria and experience. The healthcare team's competence, high-performance equipment and the large number of patients that we receive contribute to this certification.

MULTIDISCIPLINARY

The CHIREC Breast Clinic brings together all the multidisciplinary skills for the care of breast pathology on the Edith Cavell site.
Doctors and paramedical staff offer quality and personalised comprehensive care

QUALITY

All healthcare specialists at our Breast Clinic have signed the Quality Charter, drafted by the Chirec Cancer Institute, in which they agree on all aspects of patient care. The College of Physicians has endorsed and encouraged this approach.

ALL SPECIALISTS

All breast pathology specialists are available: breast specialists, gynaecologists, surgeons, pathologists, medical oncologists, radiotherapists, nuclear medicine physicians, plastic surgeons, geneticists, and also psychologists, nurses, physiotherapists, beauticians and dieticians.

PERSONALISED TREATMENT

To define the most appropriate treatment while maintaining maximum personalisation, all healthcare specialists confer weekly during the Multidisciplinary Oncological Consultations (MOC). Diagnostic and therapeutic approaches are based on international recommendations. This working method ensures optimal care while patients benefit from the expertise and cooperation of all of our specialists.

ACCESS ALL NEW TREATMENTS

Current treatments are becoming more individualised: they are selected on a case-by-case basis, according to international standards. Targeted drugs that are not yet on the market can be offered as part of clinical protocols.

ADVANCED TECHNOLOGY

Modern and high-performance equipment is used from early diagnosis to treatment: digital mammography, nuclear magnetic resonance, molecular diagnostics, the latest "ARTIST" model in radiotherapy and the latest generation PET tomography.

KEY FIGURES

The CHIREC Breast Clinic each year implements:
- **30,000** mammograms
- Support for more than **1,000** patients with breast cancer, all stages combined
- **500** breast surgeries (not including plastic surgery)
- **600** patient cases discussed in the weekly multidisciplinary oncology consultation (MOC) for breast pathology
- **220 breast cancers treated** by radiotherapy

SCREENING FOR BREAST CANCER: AN OVERVIEW

In Belgium, there are two forms of screening: the **mammotest** and the **breast examination**.
To date, the mammotest or organised mass screening, established for nearly 10 years, does not achieve its objectives in terms of population coverage. Indeed, in Brussels and in Walloon Brabant, only 10% of women use the mammotest, while 45% opt for the breast examination. These figures are way below the 70% recommended by the European standards for screening to be effective.

The mammotest is criticised for its lack of sensitivity: too many false negatives and cancers missed especially in dense breasts where sensitivity does not exceed 50%.

The mammography sensitivity is significantly improved by other imaging techniques:
- **Ultrasound** in dense breasts can increase the detection of 55% more cancers
- **Magnetic resonance** is extremely sensitive in high-risk women: those who carry a genetic mutation or have at least two first-degree relatives (mother, sister or daughter) that have had breast cancer at a young age

Screening by mammography alone is now an out-dated strategy and needs to be adapted and tailored to risk factors and new technologies.

Discussing testing without insisting on **primary prevention** makes no sense, since we know that a balanced diet and regular sport would prevent 25% of cancers, not to mention its impact on cardiovascular disease.

Dr. Véronica Mendez,
Breast Imaging, CHIREC

What is a dense breast?

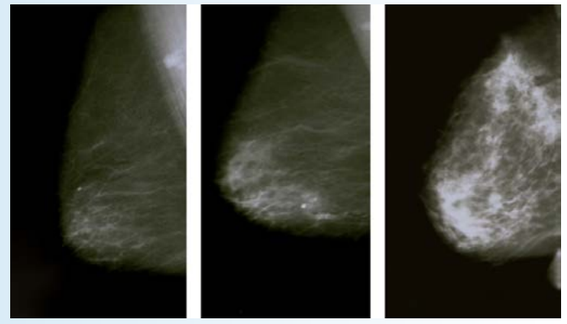
The breast is composed of four different structures: water, fat, supporting tissue and the gland itself, the latter two being referred to as the "fibro-epithelial tissue".

When performing a mammography, X-rays are used and these structures behave differently when they are traversed by X-rays: fat appears gray, while the water and fibro-epithelial tissue appears white.
It is the proportion of these different elements that determines breast density:

- Anomalies are more easily seen in a fat-rich breast
- Dense breasts appear "white" on a mammography

Breast density varies during the menstrual cycle and throughout life. Young women have the most dense breasts.

Taking certain types of hormone replacement therapy for menopause can also change breast density.



Light breasts, where **fatty** tissue is predominant, are easy to "read" and the risk of error is low (high sensitivity).
The more **dense** the breast, i.e. the more predominant the fibroglandular tissue, the harder it is to "read" with a higher risk of undetected cancer (lower sensitivity). This type of breast has a higher risk of developing cancer.

DID YOU KNOW?

- **Among 5 masses found in the breast, one is a cancer.**
- **One in 9 women has a breast cancer during her life.**
- **Among 100 breast cancers, one occurs in man.**
- **The earlier a breast cancer is diagnosed, the higher is the chance of cure.**
- **Three-quarters of breast cancers develop in women over 50 years.**
- **15% of women diagnosed with breast cancer will develop cancer in the other breast.**
- **10,000 breast cancers are diagnosed every year in Belgium.**
- **Only a minority of breast cancer recurrences occur locally: 8-9% after mastectomy, 10-15% after conservative surgery.**
- **10% of breast cancers are hereditary.**
- **Among the risk factors, we find: early periods, late menopause, extended hormone substitution at menopause, physical inactivity, obesity, smoking and alcohol intake.**
- **On the contrary, a first pregnancy before the age of 30 and prolonged breastfeeding more than 6 months seem to reduce the risk of developing breast cancer**

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FACING BREAST CANCER TOGETHER

ANATOMY AND PATHOLOGY, A KEY PARTNER IN MULTIDISCIPLINARITY

The multidisciplinary approach to diagnosis and treatment of breast disease must include anatomy and pathology. Surgical management of patients cannot be achieved without a thorough investigation by the various members of the Breast Clinic and knowledge of the breast micro-anatomy and its relationship to breast cancer lesions. Thus, arborisation of the milk ducts and lobules (Figure 1) can explain the segmental nature of localised breast cancer, allowing conserving surgery. The study of needle biopsy samples of breast microcalcifications taken by the radiologist not only diagnoses cancer, but delivers accurate information on the mode of development and expansion of the process individually for each patient concerned (Figure 2). Recent developments in genetics and molecular biology, applied at the clinic, further strengthen the role of pathology in the multidisciplinary team when the tumour is invasive and when systemic treatments, including targeted therapies, are required.

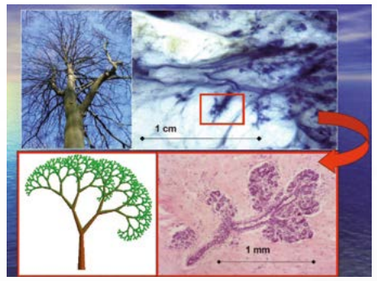


Figure 1. Microarchitecture of the breast galactophore network greatly inspired by the plant world

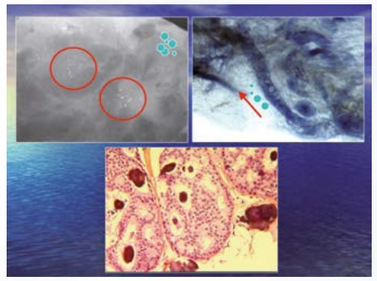


Figure 2. Multiple foci of radiological microcalcifications corresponding to in situ ductal carcinoma by conventional and 3D histological analysis (research programme subsidised by the Care Foundation)

ANATOMY AND PATHOLOGY BREAST PROTOCOL

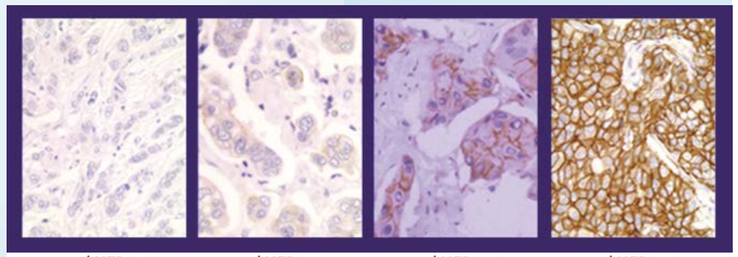
• Oestrogen (OR) and progesterone (PR) receptors:
proteins located in the cell nucleus, investigated and quantified by immunohistochemistry. The expression of OR and PR by the cancer cell signifies a better prognosis compared with tumours that do not synthesise OR and PR. These markers are predictive of the response to hormone therapy, which is the main reason for their clinical identification (pharmacodiagnostics).

• Ki67:
immunohistochemical examination identifying a non-histone protein expressed by the nuclear matrix of cells in the process of cell division. The marker, expressed as a % of the examined cancer cells (proliferation index), gives an indication of tumour growth, high or low in proportion to the index. Although this marking is clinically useful, standardisation criteria are lacking.

• In situ carcinoma versus invasive carcinoma:
in situ carcinoma develops in the breast ducts and lobules without destroying the limits of the structures that host it. As such, it does not lead to metastasis. It is considered a non-obligate precursor of invasive breast carcinomas, which is the classic form of breast cancer.

• Ductal versus lobular carcinoma:
describes the two main histological types of breast cancer - ductal when the morphology of the cancer cells has the appearance of the milk ducts, and lobular when the appearance is similar to that of the lobular cells. The distinction may be clinically important in view of the different evolutions and presentations.

neu/HER2:
cytoplasmic membrane protein overexpressed in certain carcinomas. The semi-quantitative immunohistochemical assay is based on one of the first targeted therapies for clinical use. If expression is significant, Herceptin or Tyverb therapy may be considered.

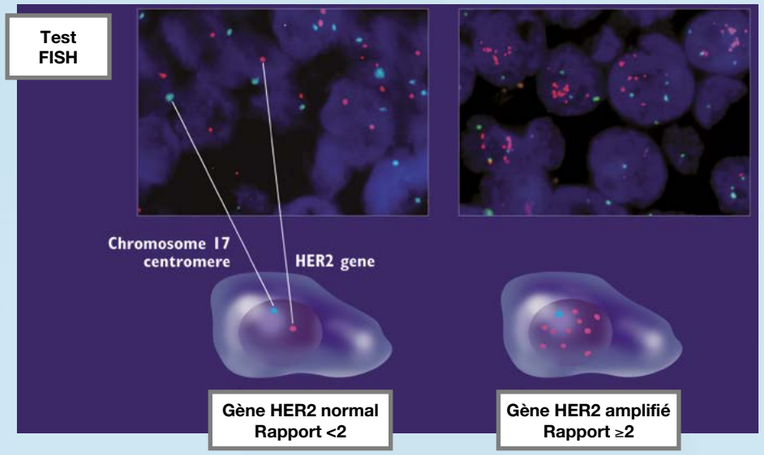


Immunohistochimie IHC)

The degree of neu/HER2 overexpression by breast cancer cells can be assessed by immunohistochemistry: therapy targeting this receptor may be indicated for values 2+ or 3+.

ANATOMY AND PATHOLOGY BREAST PROTOCOL

FISH, SISH, CISH (Fluorescent or Silver or Chromogenic
In Situ Hybridisation): molecular analysis that investigates an amplification of the gene coding for a protein. In breast oncology, this is the gene Her-2/neu oncoprotein, also known as c-erbB-2 (see above). Reimbursement of Herceptin treatment follows proven amplification of this gene.



The FISH test shows possible neu/HER2 gene amplification, responsible for overexpression of this receptor at the surface of the breast cancer cell: in this case, the ratio between the number of HER2 (in red in this figure) and a control (centromere of chromosome 17, in blue) is ≥ 2. Therapy targeting this receptor (Herceptin, Tyverb) can then be offered to the patient.3

Lymphatic emboli:
presence of cancer cells in the lumen of lymphatic vessels, often indicative of a more advanced disease. Quantification is difficult due to the fleeting and microscopic nature of these images.

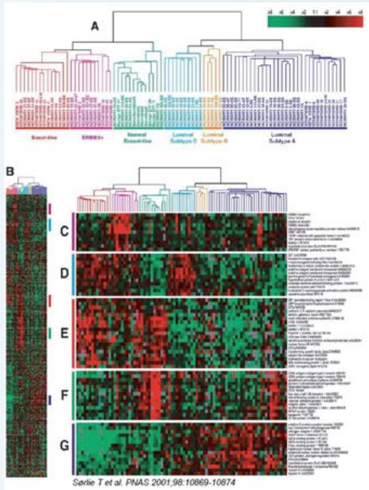
pTNM:
Refers to the WHO international classification of tumours. P stands for the histological classification of tumours where T denotes the mean tumour size, N is the lymph node status (presence or absence of tumour) and M is distant metastasis. There are several editions and it is necessary to specify which one is being used as the reference.

Isolated tumour cells:
defines the presence of the sentinel lymph node in isolated neoplastic cells. This is a highly controversial topic both in its definition (quantity, measure) and as a result of the consequences of its discovery. Currently, therapeutic caution is recommended (no continuation of surgery or systemic therapy based solely on this criterion).

Resection margins:
the surgical resection margin is the outer limit of a breast-conserving surgery specimen, its surface in other words. The margin is an area of tissue interposed between the tumour and the surgical resection margin. The pathologist should measure the tissue thickness by microscopic examination; it should be at least 2 mm (US and EC standards). The interpretation of the histological data results must be included in the weekly Multidisciplinary Oncological Consultation (MOC).

Immunophenotyping:
histological tumour type based on its microscopic morphology through routine staining (haematoxylin and eosin). Immunohistochemical examinations can also be carried out, such as E-cadherin labelling to differentiate the ductal lobular type.

Basal like, luminal:
this new approach to tumour classification is based on their messenger RNA content (technique known as micro-arrays). The method is currently being validated through clinical and international studies and is currently not reimbursed by the INAMI. Different tumour types have been defined (basal, luminal, etc.) each with a prognostic value.



Microarrays" technique

New classification of breast tumours based on their messenger RNA content, identified as follows:
** 3 types that do not have oestrogen receptors: "basal-like", "HER enriched" and "normal-like"*
** 2 types with oestrogen receptors: "luminal A" and "luminal B"*
** 1 type designated "cladin-low"*

These different types of breast cancer differ significantly in their prognosis and the therapeutic targets they express.

Dr. Daniel Faverly,
Breast Pathology, CHIREC

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FACING BREAST CANCER TOGETHER

FDG-PET TOMOGRAPHY AND BREAST CANCER

Tumour cells concentrate glucose to meet their increased energy needs. 18-fluoro-deoxy-glucose-positron emission tomography (18F-FDG-PET) is used to produce images of glucose concentration in tumour cells, including breast cancer. This in vivo tumour metabolism has several fields of application in the management of breast cancer.

•Diagnosis

PET tomography is a screening tool for breast cancer. Sometimes, however, it detects an abnormality in the breast during an examination performed for another reason. When a breast lump is avid for FDG (referred to as "hypermetabolic"), the probability of it being cancerous is very high. We can therefore use PET tomography as a diagnostic tool in cases where the classical mammography and ultrasound results are questionable or inconclusive.

• Pre-treatment assessment of the extent of disease

Recent studies have shown that it is useful to include, in some cases, FDG-PET tomography in the pre-treatment assessment of the extent of breast cancer at the loco-regional stage. Indeed, PET tomography can reveal internal and especially distant metastases and very early stage mammary lymph node metastases, and thus improve therapeutic management.

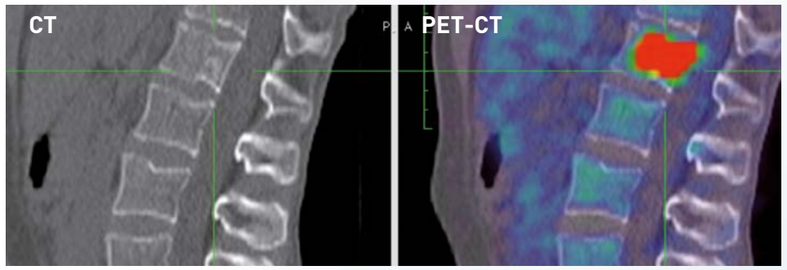
• Detection of recurrence

FDG-PET tomography has been recognised for many years as a highly sensitive method for detecting breast cancer recurrence. FDG-PET tomography detects bone, liver, lung, lymph node and loco-regional recurrence and the staging is performed in a single procedure, with high sensitivity.

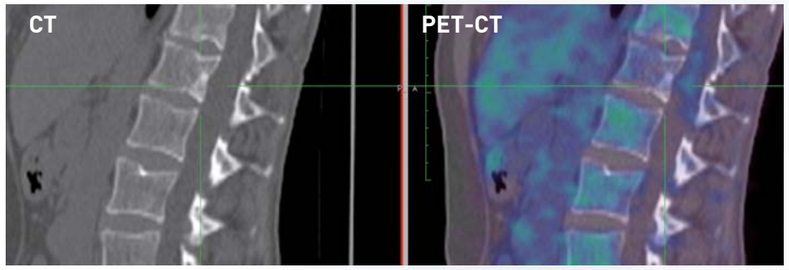
• Measurement of the metabolic response to treatment (chemotherapy, hormone therapy and targeted therapies)

New therapeutic approaches to breast cancer are an issue in terms of assessing tumour response. Indeed, in metastatic situations, we are moving increasingly towards the concept of tumour control, as opposed to the old paradigm of tumour destruction. Conventional imaging methods estimate the size and shape of the tumour, which cannot change during treatment to control tumour growth and prevent dispersion. Metabolic or functional imaging, particularly FDG-PET tomography, measures tumour viability and demonstrates metabolic responses while no morphological change is observed (yet). PET tomography can quantify the tumour response of bone metastases, common in breast cancer (see the example shown), whereas the metastatic site is considered non-measurable by conventional imaging methods (X-ray, CT-scan). This allows quick adaptation of treatment regimens based on the response or non-response of tumours. These new approaches pave the way to personalised cancer medicine, where treatment can be adapted quickly to the therapeutic goal.

Measurement of tumour response of breast cancer bone metastasis
(chemotherapy + hormone therapy).



Significantly hypermetabolic bone metastasis of vertebra L1



Complete metabolic response with disappearance of metabolic hyperactivity. However, on the CT scan there is strengthening of the hyperintensity, which might suggest a progression of the disease, but in fact corresponds to bone reconstruction.

Prof. Max Lonneux,
Nuclear Medicine, CAVELL

QUALITY REVOLUTION IN ONCOLOGY: EXAMPLE OF THE BREAST CLINIC

Multidisciplinary Oncology Consultations - MOCs

The quality revolution such as represented by an approved Breast Clinic like the Chirec Cancer Institute must comply with an important criterion: submitting the case of any patient with breast cancer, or suspected cases, to a weekly meeting in which all the experts, specialists and paramedics are involved, as illustrated in the diagram below. When experts are on different sites, they communicate by teleconference and study together:

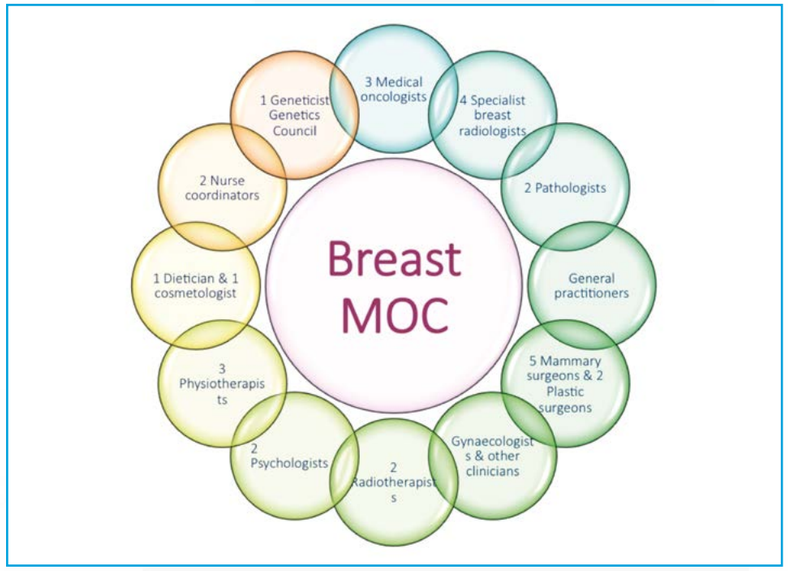
• The diagnosis

The diagnosis is the subject of discussion between the clinician, the specialist breast radiologist and the pathologist when a biopsy is performed. This discussion is not just about confirmed cancer cases, but also cases where malignancy is suspected.

• Recommendations for the best therapeutic approach

- Resection of the lesion by mammotome achieved in some cases by the breast specialist, which sometimes avoids the need for surgery
- What type of surgical treatment: conserving surgery (lumpectomy) or mastectomy
- Chemotherapy before (neoadjuvant) or after (adjuvant) surgery
- Chemotherapy or not
- Radiotherapy or not
- Possible hormone therapy, and what type

A **MOC report** is written immediately: 227 MOC reports were written in 2012. The MOC report is stored in the computerised patient record and distributed to the consulting clinicians. These data are included anonymously in the National Cancer Registry databases.
The quality process developed at Chirec over several years, and more specifically since the creation of the Chirec Cancer Institute (CCI) in 2008, led to its Breast Clinic being chosen for the **"Quality coordination and patient safety"** agreement signed between Chirec and the Ministry of Public Health. At the centre of this agreement, the identification of 11 **"quality indicators"** has been the subject of extensive work at the Chirec Cancer Institute: three structure indicators, five process indicators and three results indicators.



Thus, we have studied, for example:

- The time between an abnormal screening examination and further examination: **two in three patients were examined at the CCI within less than three days**, which is the time set by the international recommendations.
- The proportion of women in clinical stage I and II who receive breast-conserving surgery: **around 75% in the CCI**, which is a percentage corresponding to the international recommendations.
- The proportion of patients with new breast cancer whose case was discussed in the MOC BEFORE any treatment was **more than 80% in 2012**; this figure is all the more remarkable as large centres only discuss cases in MOC after surgery.

The quality approach of the Breast Clinic also involves the signing of a Quality Charter by all caregivers, and the continuous search for improvement in patient care. One example in recent months is the development of an interventional MRI which allows a biopsy to be carried out under imaging control for lesions not visible with ultrasound.
This quality strategy centred on the interests of patients and the sophisticated equipment coupled with multidisciplinary teams at the forefront of best practices means that, since March 2013, the Chirec Cancer Institute Breast Clinic has been accepted as a full member of the European network SENONETWORK (Breast Centres network), fulfilling all the necessary criteria (http://www.breastcentresnetwork.org/criteria.pdf).

Dr. Jean-Pierre CLAES,
Gynaecological, pelvic and breastsurgery, CHIREC

Pr. Thierry VELU,
Medical Oncologist, CHIREC

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FACING BREAST CANCER TOGETHER

BREAST-CONSERVING TREATMENT: PRESENT AND FUTURE

1. Breast-conserving surgery

Oncoplastic breast-conserving surgery combines oncological safety – by giving priority to the completion of the removal of the tumour with a healthy margin – and aesthetic reflection - by reshaping the rest of the mammary gland to form the contour of the breast as naturally as possible.

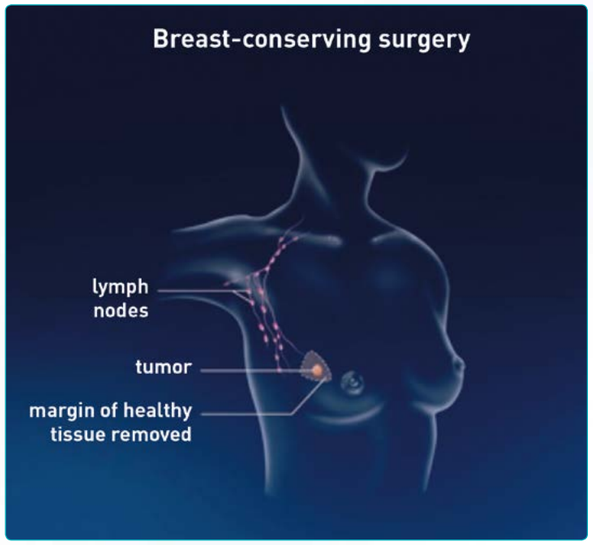
Improved screening techniques allow identification of increasingly early suspicious abnormalities in certain circumstances and an opportunity to benefit from preoperative chemotherapy. Excellent cooperation with gynaecologists and plastic surgery teams has provided more and more patients with oncoplastic breast-conserving surgery of high aesthetic and oncological quality.

Indeed, numerous studies have finally been able to demonstrate that in many cases, breast-conserving surgery is as effective as mutilating surgery.

This aesthetic-oriented conserving treatment is of course always associated with sentinel lymph node excision or removal of some axillary lymph nodes depending on the size and type of tumour in question.

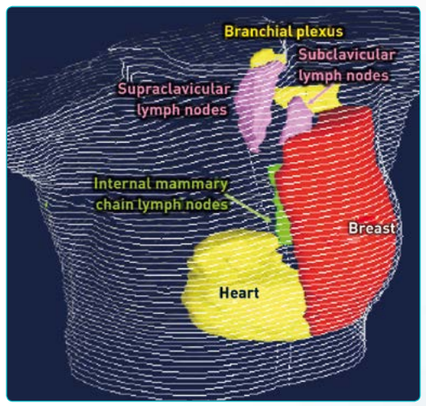
Now, the majority of our patients detected early benefit from breast-conserving surgery and postoperative radiotherapy, which has also evolved significantly towards personalised treatment.

Dr Jean Frédéric Limbosch,
Gynaecological, pelvic and breast surgery, CHIREC



Source INCA – www.e-cancer.fr

2. Radiotherapy



Three-dimensional reconstruction of the chest with breast volumes and lymph channels, and neighbouring risk areas (heart and brachial plexus)

Radiation treatment has changed dramatically in recent years.
Radiotherapy is essential in the context of conserving treatment to eliminate subclinical residual. The conformal irradiation techniques make it possible to deliver a dose of 45-50 Gy to the whole breast in 4.5 to 5 weeks.

This method provides excellent local control, a good cosmetic result and a survival benefit.

In some situations (patient in poor condition, elderly or very geographically distant), a concentrated radiotherapy treatment can be considered (42.5 Gy in 16 sessions). Studies have shown similar efficacy. However, this treatment is reserved for selected cases because loco-regional toxicity is more significant, especially if lymph-node treatment is necessary. The radiation plexitis increases from 1% in case of a 2 Gy session to 6% if treated with 3.7 Gy.

After conserving treatment, most recurrences develop in the same quadrant as the original tumour. Studies are underway to validate such a therapeutic approach. Partial breast irradiation will be exclusively reserved for tumours with excellent prognosis. It can be delivered in one session during surgery (but determining the target volume is an issue) or more sessions by conformational irradiation techniques or IMRT.

IRRADIATED BREAST CANCER EXPERIMENT AT THE CHIREC

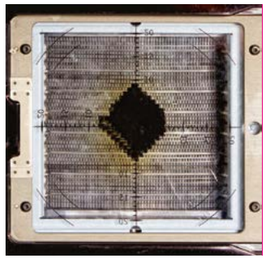
Breast cancer is a disease that regularly requires radiotherapy. Many retrospective and prospective studies have examined the impact of radiation on the rate of local recurrence and survival. Based on thousands of women treated, a significant benefit in terms of local recurrence and overall survival at five years and at ten years has been demonstrated.

Introduction
Breast cancer is a disease that regularly requires radiotherapy.
Many retrospective and prospective studies have examined the impact of radiation on the rate of local recurrence and survival. Based on thousands of women treated, a significant benefit in terms of local recurrence and overall survival at five years and at ten years has been demonstrated.
However, the first major studies have reported a high rate of complications, including significant cardiac toxicity.
For over a decade, linear accelerators have replaced cobalt therapy machines. Moreover, volumes treated, identified and determined initially by a conventional radiological study have been calculated for some years by scanner simulator.
These technological developments have led to a much more rigorous approach to treatment.
The increased accuracy has significantly reduced side effects, especially cardiopulmonary toxicity.
Since 2010, we have had the latest generation accelerators coupled to a virtual simulation CT system at CHIREC. Our goal as radiation therapists is to deliver the optimal dose uniformly within the target volume. The breast is a complex organ with very different geometries and constraints with respect to the organs at risk (heart and lungs).
To achieve this goal, we decided as a team to offer our patients intensity-modulated radiation therapy. This means that we modulate the beam by means of a computer controlled multi-leaf collimator.
The "blades" of the device move in order to adapt the irradiation beam perfectly to the tumour shape. The beams are directed at different angles to the target volume to be treated using the most effective dose.
This technology allows the creation of very precise dose gradients and protects the adjacent healthy tissue by exposing it to only minimal radiation doses.

Methodology
Between November 2010 and November 2012 we treated 199 patients (94 in 2011 and 105 in 2012) by lumpectomy for breast cancer. The first part of the treatment involved determining the volume to be treated.
The virtual simulation scanner took 15 minutes and allowed maximum precision.
Skin marks corresponding to positioning lasers were drawn on the breast to treat and on the left and right sides of the patient.
The volume to treat and the organs at risk were drawn by the doctor on the dosimetry scanner.
The data were then transferred to the radiation physics unit.
Dosimetric calculations took approximately two hours.
Once completed, they were validated by the radiotherapist.
Before the actual treatment, the physicist engineer took measurements on a "ghost" (polystyrene plates), which compared the beam calculated with the beam measured. After one hour, we checked in real conditions if the distribution of the dose corresponded to the projections.
Finally, treatment could begin. Before each session, an imaging control was performed to verify the accuracy of the positioning relative to the identification scanner. Changes were made where necessary.

Results
We have little information on long-term toxicity.
Therefore, we focused on the impact of such treatment on the short-term side effects compared to conventional therapy.
Dosimetric accuracy allowed us to increase the dose to the tumour volume (surgical site bounded by clips). This resulted in better radiobiological performance and, more particularly, reduced the one-week treatment period.
We did not observe any acute cardiopulmonary toxicity.
Skin dermatitis of the 199 "IMRT" patients was compared to a similar cohort (200 patients) of patients treated from 2005 to 2007.
Skin dermatitis was less common
It appeared later (after 19 days of treatment instead of 10 days).

Linear accelerator



Multi-leaf collimator

In 34% of cases, dermatitis began only on day 23 (the last week of treatment) and intensified especially during the first few days after the end of treatment.
Skin reactions almost completely disappeared on the 10th day post-treatment (89%).
The primary risk was significant breast size and prior chemotherapy.
In about 80% of cases, we were able to predict the area in which the skin reaction would be more intense.
It was usually linked to an overdose issued at a tumour bed close to the skin.

Dr Philippe Warnier,
CHIREC, Radiotherapy

Dr Pauline Gastelblum,
CHIREC Radiotherapy, Head

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innovation recovery continuity of care accessibility multidisciplinarity
quality of relationship innovative technique prevention
new equipments serenity trust

FACING BREAST CANCER TOGETHER

CURRENT VIEW OF MASTECTOMY FOR BREAST CANCER

Mastectomy ("complete" removal of the mammary gland) is at present necessary in the surgical treatment of certain breast cancers: multicentric cancers (several quadrants), tumour volume too high in relation to breast size or at the express request of the patient.

It can also be justified as prophylactic in case of BRCA 1 or 2 mutation carrier patients (decreasing by 90% the risk of developing breast cancer). It is then systematically associated with immediate reconstruction.

The mastectomy rate varies widely from one team to another and constitutes between 25 and 50% of breast cancer surgeries. Since 1980, there had been a gradual decrease in the rate of mastectomy in favour of breast-conserving surgery (lumpectomy, quadrantectomies and oncoplastic surgery followed by radiotherapy), but a reversal of this trend has been noted in recent years. The introduction of more frequent MRI in the preoperative assessment has increased the rate of detection of multifocal and multicentric cancer. On the other hand, occasionally poor long-term breast-conserving surgery and improved results of reconstructive surgery techniques has led some surgeons to favour complete removal of the gland followed by immediate reconstruction.

Thus, we note a gradual increase in the rate of mastectomy with conservation of the skin case, improving the aesthetic and functional results after immediate reconstruction (by prosthesis or autologous flap). Conservation of nipple-areola complex is a subject of controversy.

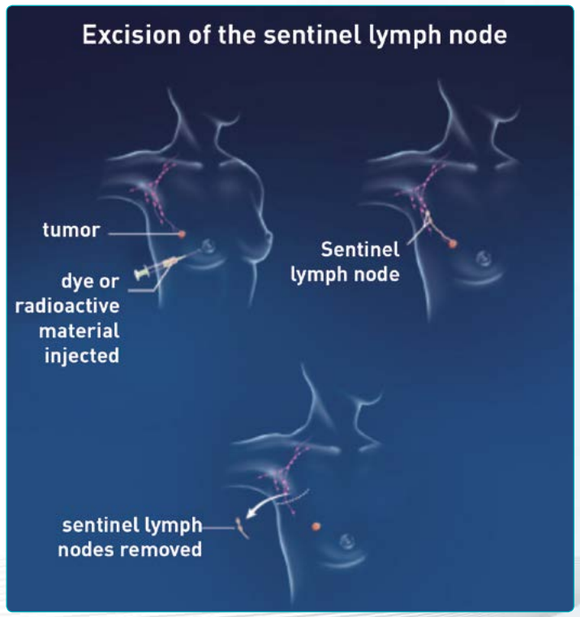
In the case of conventional mastectomy, care should be taken to obtain a very regular scar, which will improve the cosmetic and functional long-term results and facilitate possible future reconstruction. Psychological support will always be offered to the patient, who will have received a temporary external insert prior to leaving the clinic.

Dr Patrick Colart,
Gynaecological, pelvic and breast surgery, CHIREC

SENTINEL LYMPH NODE TECHNIQUE

a technique to reduce the incidence of arm swelling, or lymphedema

Evaluation of the axillary lymph nodes in breast cancer is crucial, as it is a prognostic factor that determines general treatment and topical treatment. Historically, this assessment was made only by surgical axillary dissection (lymphadenectomy).



Source INCA – www.e-cancer.fr

To avoid unnecessary axillary dissection and to reduce morbidity (complications) related to this procedure, a "sentinel lymph node" technique is offered nowadays.
The principle is based on the assumption that drainage of the tumour is through a first functional node that drains the tumour by a lymphatic route. This is the "sentinel" node of the tumour.
The method must have a rate of close to 100% detection and false negative rate close to 0%.
The absence of invasion of the first functional node is a reliable sign of absence of invasion of any other node. This node is "representative" of the status of other axillary lymph nodes.

From a practical point of view, a peritumoral or periareolar substance (nanoparticle colloid labelled with Tc- 99m and/or blue dye) is injected. This migrates and comes to a stop in the first functional node.
During surgery, the surgeon uses a probe for detecting radioactivity to locate and remove the axillary sentinel node.
The node is analysed either immediately (frozen section) or later.
- If it is not infested, there will be no other surgery on the lymph nodes and dissection is avoided.
- If it is infested, dissection is carried out.

Dr. Marc Arens,
Gynaecological, pelvic and breast surgery, CHIREC

BREAST RECONSTRUCTION

Breast reconstruction can be done either autologous tissues (flaps) or by implants. If several options are possible, a combination of factors (patient's wish, her professional activities, the condition of the adjacent tissue, available donor sites, general contraindications, oncological status, other breast, etc.) allow the plastic surgeon, in agreement with the patient, to choose the best available technique to reconstruct the breast.

IMPLANT RECONSTRUCTION.

Breast implant reconstruction is still the most widely used technique despite the alternative techniques for autologous tissue reconstruction. In most cases, implant reconstruction is done in two stages: tissue expansion followed by the introduction of the definitive implant. Tissue expansion is a plastic surgery technique used in other applications to «create» skin by expansion, just as excess abdominal skin is created in pregnant women by progressive tissue expansion of the abdomen.
The benefits are that it is a fairly simple procedure with relatively minor and short operative interventions compared with flap reconstruction. The scarring is minimal since the reconstruction is usually done via the mastectomy scar.
However, comparison of the medium to long-term results is more subtle, and long-term benefits are definitely in favour of autologous reconstructions, given the risk of future implant complications and the gradual deterioration of symmetry.
Breast implant reconstructions have several disadvantages: consistency sometimes too firm, the reconstructed breast too round or lacking a defined infra-mammary fold, the implant may be palpable or wrinkle, or the breast may be a fixed shape compared to the other one, especially when lying down.

AUTOLOGOUS TISSUE RECONSTRUCTION

In contrast to reconstruction using implants, the benefits of reconstruction performed with the patient's own tissue (autologous) increase with time. The breast assumes a more natural shape with time, scars fade and the breast is warm and feels natural. Amongst the tissues used for reconstruction are:

The DIEP flap (Deep Inferior Epigastric artery Perforator) or abdominal flap

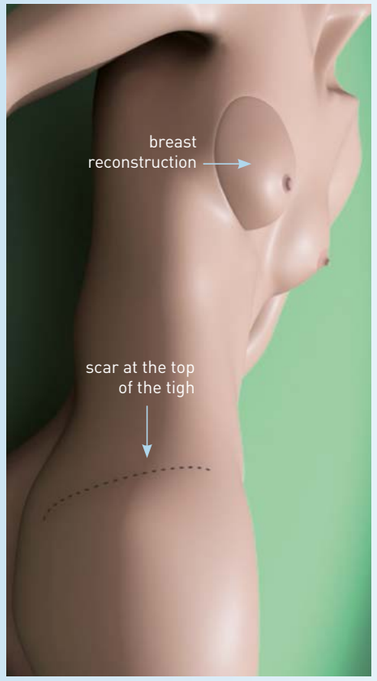
In the case of a DIEP flap, skin tissue and fat are removed from the lower abdomen and transplanted into the breast. This procedure involves the use of microsurgery. The skin and fatty tissues of the abdomen are freed on a vascular pedicle. This means that the function of the right abdominal muscle is fully preserved. Vessels are anastomosed with other vessels using a microscope. The patient therefore has a scar along the lower abdomen, but it is placed low and can be hidden by underwear or a normal bikini. After surgery, the stomach is flatter and tighter, which is an additional benefit that some women enjoy.

Other flaps:

Skin and fat tissues can also be removed from the buttock (SGAP flap) or the top of the inner thigh (garcilis flap) and transferred by microsurgery. This technique is indicated when the DIEP flap is not possible (flat abdomen).

FAT GRAFTING (LIPOFILLING) AND BREAST RECONSTRUCTION:

In this procedure, fat is harvested by liposuction technique from parts (abdomen, hips etc.) of the body and then transferred into the breast to add volume or correct a contour problem. Advantages of fat grafting include using your own fatty tissues rather than a foreign body injectable and the added benefit of having liposuction remove fat from an area where you don't want it.
Usually, 30-40% of the injected fat goes away within several months, and so additional fat grafting may be required several months later. Currently, we are using fat grafting to correct contour deformities following lumpectomy or mastectomy with reconstruction. Total breast reconstruction can be also performed with multiple-session procedure (4-5 sessions).



Source : www.ebreast.be

SURGICAL TREATMENT OF LYMPHEDEMA:

10 % of patients treated for breast cancer develop lymphedema of the upper limb (radiation, sentinel node and axillary dissection). Problems often arise some time (often years) after the primary treatment of breast cancer. Until recently, conservative treatment was the only form of relief for these patients (lymphatic drainage and bandage). Since a few years, we can also apply surgical treatment in selected cases:
- Microsurgical lymph node transfer
- Microsurgical lympho-venous anastomosis

The lymph node transfer is done from healthy lymph nodes (e.g. from the groin) to the affected area (e.g. armpit). This procedure is usually combined with a breast reconstruction with free DIEP flap.
In a lympho-venous anastomosis (LVA), is a microanastomosis between lymphatic channels and superficial vein. In this way, the lymph fluid drains through a bypass to the skin vein. After these procedures, patients follow a rehabilitation program.
In both techniques, surgery is indicated during early stage of lymphedema. The earlier the intervention is, the better the results are.

Pr. Moustapha Hamdi
Plastic surgery and breast reconstruction, CHIREC

Dr. Jean Van Geertruyden,
Plastic surgery and breast reconstruction, CHIREC

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FACING BREAST CANCER TOGETHER

MEDICAL DRUG THERAPIES

1. Practical review of hormonal therapies in breast cancer

Hormone therapies are a medical treatment of hormone-dependent breast cancer.
This treatment is useful, in fact, for the prevention of breast cancer in carcinoma in situ, in adjuvant treatment and in metastatic treatment.
An overall survival rate of 13% is obtained by hormone treatment in invasive cancers.
The different molecules used are anti-oestrogens (Tamoxifen) and aromatase inhibitors.
The choice of these molecules is decided at the Multidisciplinary Oncological Consultations (MOC) in accordance with the guidelines.
The anti-oestrogen Tamoxifen (Nolvadex) requires gynaecological supervision because of an increase in the incidence of polyps, fibroids, functional cysts, atypical endometrial hyperplasia and endometrial cancer.
Liver toxicity can occur and history of thromboembolism should contraindicate this treatment. However, it has a positive effect on bone density. Finally, despite its anti-oestrogenic effects, it is not a premenopausal contraception and therefore non-hormonal contraception is required.
Treatment with aromatase inhibitors (Arimidex, Femara and Aromasin) requires a cardiovascular review if there is pre-existing disease due to the increased incidence of these problems.
Arthralgia and myalgia have significant and debilitating side effects for patients, but rarely persist beyond six months.
Aromatase inhibitors increase the incidence of osteoporosis for which patients should be screened and treated.

Dr Bruno Van Der Meersch,
Oncological Care Programme Coordinator at the Ste-Anne St-Rémi Clinic

2. Chemotherapy

Chemotherapy is a medical treatment of breast cancer. It acts on cancer cells throughout the body, by either destroying them or preventing them from multiplying. However, these drugs lack specificity, affecting all dividing cells, and lead to the well-known side effects of hair loss (damage to the hair follicles), mucositis and decreased blood cells. Other side effects are nausea and vomiting, diarrhoea or constipation, sores or dry mouth, fatigue, pain, irregular menstrual cycles or even a cessation of menstrual cycles (temporary or not), disturbance of married life, etc.
New chemotherapy drugs for breast cancer have emerged in recent years, increasing the therapeutic arsenal. However, progress has been made especially in the development of supportive treatments that reduce their toxicity: the time of patients vomiting after treatment, all too well known to the public, is over! Alongside these comfort drugs are treatments to avoid decreased neutrophil white blood cells (causing susceptibility to infection) and red blood cells (anaemia causing fatigue).
Chemotherapy may be "adjuvant": in this case, it follows surgical treatment and aims to reduce the risk of cancer cells growing at a distance, called metastasis.
It can also be "neo -adjuvant": it is administered before surgery, with various goals other than those defined in the adjuvant setting. These include making surgical excision easier for possible conserving surgery and assessing the anti-tumour efficacy by following tumour regression (which is obviously not possible if chemotherapy is performed after surgery). Thanks to this monitoring, we can adapt treatment, by for example changing medications, in case of an insufficient response.
Chemotherapy is not offered routinely to all patients, but only when the cancer has a higher risk of recurrence. This risk actually depends on the characteristics of the cancer and the age of the patient, thus the prognostic factors.
These factors are used to decide whether to administer chemotherapy or not. Amongst them are the number of axillary lymph nodes, the tumour grade (I to III), the size of the tumour, the absence of hormone receptors, the presence of neu/HER2 receptors, the patient's age, the presence of vascular emboli, a young age and possibly also the proliferation index.
The physician uses software (Adjuvant OnLine) to calculate the risk of recurrence within 10 years after treatment, and the benefit of medical treatment of these risks (hormone therapy and chemotherapy). This software can help the Multidisciplinary Oncological Consultation (MOC) to select the medical treatment by examining the likelihood of recurrence, and informing and discussing with the patient the statistical benefits and risks expected from the different treatments.
When the physician proposes chemotherapy, he takes into account these risk factors, but also the general state of patients, their preferences, and their medical and surgical history.
Finally, everyone knows that chemotherapy is not only for new diagnoses, but to this day still plays a prominent role in the treatment of recurrence. However, we will see below that things are beginning to change...

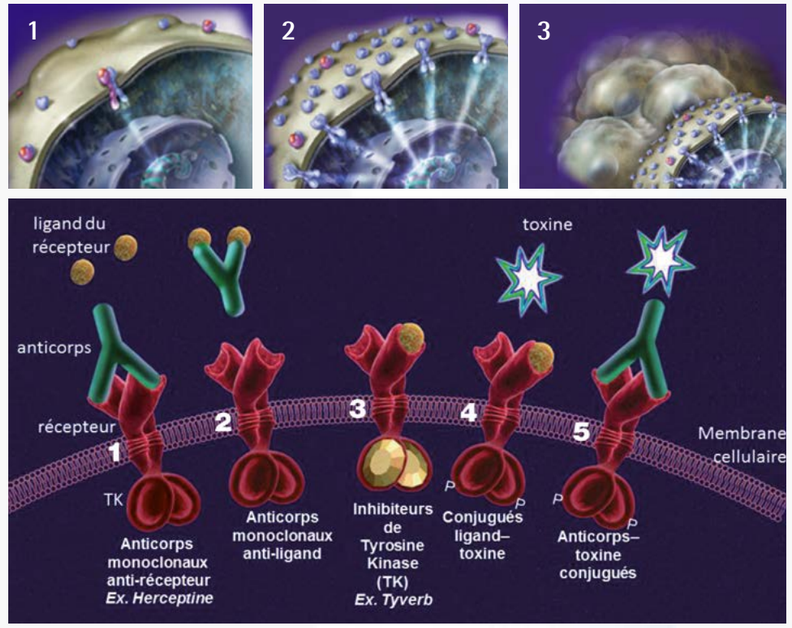
3. Targeted therapies
At last, drugs more effective and less toxic than chemotherapy

In recent years, we have seen a revolution in the medical treatment of cancer. New drugs have been added to the list of chemotherapy drugs. Although still limited, each year sees new treatments emerge. Their anti-tumour activity is much more specific than chemotherapy drugs, allowing them to be more effective and less toxic. These remarkable characteristics result from the fact that they are able to target a component of the tumour cell that plays a central role in the cancer process: they are called **"targeted therapies"**. They are the result of fundamental cancer research, conducted extensively around the world for the last 20 years. Many of these therapies target transmembrane receptors, i.e. crossing the cell membrane: they exert a crucial check on cell division, and are under the control of extracellular factors, which bind to them (ligands) (see figure). In tumour cells, the number of these receptors may be 10 to 100 times higher than in normal cells, which makes them ideal tumour targets. Various strategies have been developed to target them (see figure). In breast cancer, one of these treatments is Trastuzumab, better known as **Herceptin®** (see figure). It is a monoclonal antibody that specifically targets the neu/HER2 receptor present in abnormally high numbers on the surface of 15-20% of breast cancers (see figure). Administered intravenously for one year, it can reduce by about 50% the risk of recurrence after breast tumour resection. This major benefit is obtained with almost no side effects. Another monoclonal antibody targeting neu/HER2 will be available in 2014 and is called **Pertuzumab** (Perjeta®). This antibody prevents the physiological dimerisation of neu/HER2 with other receptors. In combination with Herceptin, it is able to induce tumour responses in patients progressing on Herceptin.
Also targeting neu/HER2 is **Ado-Trastuzumab emtansine (or T-DM1)**, which should be available soon. This is a conjugate consisting of Trastuzumab (Herceptin®) linked to an antimitotic agent called maytansine. Studies have shown high anti-tumour efficacy, either in the case of Herceptin failure or even as a front-line treatment.
Additional therapy, Lapatinib or Tyverb®, can be offered to patients with breast cancer (see figure). This therapy, like its predecessors, targets neu/HER2, and another related receptor, EGFR/HER1, by blocking tyrosine kinase enzymatic activity after crossing the cell membrane. It has the advantage of being active in breast tumour patients who have become resistant to Herceptin®. It seems to cross the blood-brain barrier more effectively, which could prevent or treat secondary brain damage.
Finally, a targeted therapy that has been proven in breast cancer is **Bevacizumab or Avastin®**, another monoclonal antibody targeting VEGF directly involved in the formation of neo-vessels feeding the tumour. We already mentioned this new treatment in CCI News Issue 5 because it is active in other tumours, in particular colon and kidney cancer, and brain glioblastomas.
In the course of 2013, another targeted therapy has become available for our patients with breast cancer expressing hormonal receptors, named **Everolimus (Afinitor®)**. This is an mTOR inhibitor. In combination with aromatase inhibitor hormone therapy (Exemestane or Aromasin®), this treatment is very effective in doubling progression-free survival. In addition, it has the advantage of being administered orally and induces relatively few side effects.

Pr. Thierry VELU,
Medical Oncologist, CHIREC

Fig.1
In normal cells, the neu/HER2 receptor controls cell proliferation and survival. (2) In the cells of some breast cancers, the number of receptors increases abnormally, 10 to 100 times: this overexpression is induced by amplification of the gene (see figure for the FISH test above). (3) It leads to a loss of control of cell division; the cells multiply and form a tumour. The receptor is an ideal anti-tumour target, since, firstly, its overexpression is present only on tumour cells (targeted treatment will be specific), and secondly, it plays a key role in the process of carcinogenesis (the treatment will therefore be even more effective)..

Fig.2
Therapies targeting tyrosine kinase (TK) receptors overexpressed on the surface of tumour cells, such as neu/HER2 in breast cancer. When the ligand binds to the outside of the cell, tyrosine kinase (TK) activity is activated, leading to cell division. Various strategies targeting these receptors are being developed: antibody targeting either the receptor (example of Herceptin in breast cancer) (1) or its ligand (2) tyrosine kinase inhibitor (example of Tyverb in breast cancer) (3) or attachment of the toxin, as conjugates, either to the ligand (4) or an antibody (5).



d'après Roche-Genetech»

early diagnosis
innovation
recovery
quality of relationship
continuity of care
coordination
personalization
innovative technique
support
accessibility
role of general physician...general practitioner
prevention
new equipments
multidisciplinarity
serenity
trust

FACING BREAST CANCER TOGETHER

BREAST CANCER - WHAT'S NEW?

We have selected some recent data showing the steady progress that has been made in the diagnostic and therapeutic management of patients with breast cancer. In addition to its primary goals of humane and personalised management, the Chirec Cancer Institute has a goal of excellence, which implies, in particular, the immediately incorporation of these goals in everyday practice, depending of course on their «level of evidence».

• Extension of the duration of adjuvant hormonal therapy

Until recently, the standard duration of hormone therapy after surgery for breast cancer expressing hormone receptors (oestrogen and possibly progesterone) was five years. At present, several studies question this "standard". In particular, the Atlas and aTTom studies show that Tamoxifen (Nolvadex) prescribed for 10 years instead of five years is associated with a 25% relative reduction in mortality from breast cancer over 10 years. Reduced recurrence was found in all subgroups, regardless of age, nodal status, tumour size, type of surgery (conservative or not) or menopausal status.
Tamoxifen treatment is associated with a reduced risk of ischemic heart disease, but with an increased risk of thromboembolic complications and endometrial cancer, which can still be effectively treated if diagnosed early. This is why patients on Tamoxifen should undergo a pelvic examination at least once a year and in case of bleeding. According to Dr Gray, statistically, for every death from endometrial cancer induced by long-term Tamoxifen treatment, 30 deaths from breast cancer are avoided; therefore, the benefits of extending Tamoxifen treatment to 10 years largely outweigh the risks.

• Hormone therapy for lobular breast cancer

More and more data suggest that an aromatase inhibitor is better than an anti-oestrogen as hormone therapy in invasive lobular breast neoplasia.

• What's new in the sentinel lymph node technique?

Recent studies show that for patients diagnosed with breast cancer of less than 5 cm and no clinically or radiologically suspicious axillary lymph nodes:

- The sentinel lymph node technique is safe and effective
- A negative sentinel lymph node on pathological examination is sufficient and does not require axillary dissection
- A sentinel lymph node with occult disease on pathological examination (micrometastases or isolated tumour cells) is associated with a slightly worse prognosis in terms of recurrence-free survival, but it is not associated with an increased axillary recurrence
- If a sentinel lymph node is positive on pathological examination, conventionally performed dissection cannot be achieved in some cases or is replaced by axillary radiotherapy.

• Hereditary predisposition associated with triple-negative breast cancer

13% of patients with triple-negative breast cancer are carriers of a mutated BRCA gene responsible for hereditary predisposition to breast and ovarian cancer. The tumour phenotype is called triple negative because tumour cells do not express the oestrogen receptor, the progesterone receptor or overexpression-amplification of HER2/neu. In which patients should we search for this mutation? If search criteria were based only on the presence of significant family history or an age of less than 50 years, we would miss a third of those screened. International guidelines currently propose searching for BRCA mutation in any patient with triple-negative breast cancer under the age of 60, regardless of family history.

• Neoadjuvant chemotherapy in triple-negative breast cancer

Chemotherapy is classically associated with surgery for breast cancer by lumpectomy or mastectomy to reduce the risk of recurrence; it may be administered before or after surgery, and is described as neoadjuvant or adjuvant, respectively. The purpose of administering it before surgery is to facilitate conserving surgery (lumpectomy rather than mastectomy), or to improve surgical care in situations where surgery is not immediately feasible. Another good reason for administering chemotherapy before surgery is to evaluate its effectiveness by measuring tumour regression. A recent GeparSixto study confirms the importance of adding carboplatin to "standard" neoadjuvant chemotherapy for triple-negative breast cancer: the total response rate then reaches 60% instead of 38%, which should have a significant impact on reducing the risk of recurrence.

• ... and progress for genetic signatures

Various genetic signature tests conducted on breast cancer have emerged to try to determine better the risk of recurrence (ROR). The main objective is to try to better define the indications for adjuvant chemotherapy in situations in which conventional tests provide insufficient guidance (intermediate risk). Conventionally, axillary lymph node involvement is an indication for chemotherapy. At the meeting of the American Society of Clinical Oncology in 2013, Gnant et al. showed that one of these tests, PAM50 (measuring the expression profile of 50 genes), was able to identify, to a highly significant degree, a subgroup of patients who had a low risk of relapse and who could manage without chemotherapy. These patients presented with breast cancer expressing hormonal receptors, but not HER2/neu, with one to three axillary lymph nodes. In this subgroup, the risk of recurrence was less than 8% at 10 years after receiving only adjuvant hormonal therapy.

Pr. Thierry VELU,
Medical Oncologist, CHIREC

PREVENTION MIGHT AVOID 40% OF CANCER!

The World Health Organization (WHO) estimates that at least 40% of cancers could be avoided through effective prevention strategies...

It is indeed possible to decrease the incidence of certain cancers is indeed possible by reducing or eliminating certain risk factors, related to lifestyle, environment or professional setting. Specific risk factors for breast cancer are: age, ethnic origin, certain benign lesions, a personal or family history breast cancer, genetic factors, the lifestyle, dietary and/or hormonal factors, exposure to ionizing radiation, and environmental factors. It is therefore possible to act on some of these risk factors implicated in cancerogenesis. Many studies demonstrated an association between breast cancer incidence, body mass index and weight gain mass in menopausal women.

Cancer prevention by nutritional monitoring will be discussed in an upcoming issue of the News. In menopausal women, several studies also showed an association between reduced risk of breast cancer and sustained physical activity. For example, in the observational Women 's Health Initiative study, the benefit was particularly evident among women who practiced a exercice of 10 hours or more per week, such as fast walking. In addition, another large study presented at the American Society of Clinical Oncology (ASCO) in June 2011, confirmed the association between tobacco and breast cancer.

Finally, we cannot end this brief overview without introducing drug strategies. In a large phase III study on 4560 patients, also presented at ASCO, prophylactic hormonotherapy with Exemestane resulted, at 3 year, in a 65 % risk reduction in developing invasive breast cancer in postmenopausal women at risk of developing such disease. In fact, in this study, a benefit was observed in patients with one or more of following risk factors: high risk defined by a Gail score > 1.66 % (score calculating the risk for breast cancer based on several criteria), previous atypical ductal or lobular hyperplasia, lobular carcinoma in situ or ductal carcinoma in situ, with mastectomy, or an age above 60y. International guidelines will define more and more precisely in which patients such preventive treatments may be prescribed, after careful and complete evaluation of the risk and benefit ratio.

Dr. Sonia Lejeune,
Gynaecological, pelvic and breast surgery, CHIREC

Photo Thinstock©

Websites to visit

Europa Donna Belgium
European network created from the desire to mobilise the support and solidarity of women in Europe facing breast cancer
www.europadonna.be

Vivre comme avant
is a movement of assistance and moral support run voluntarily by women who have experienced the disease.
www.vivrecommeavant.be

Association le cancer du sein parlons-en
www.cancerdusein.org

Breast cancer
Information site dedicated to breast cancer
www.cancer-sein.net

Cancer and Psychology
Specialised in psychological support to patients and their relatives
www.canceretpsy.be

Fondation contre le cancer
www.cancer.be

Belgian Cancer Registry
www.kankerregister.org

Brumammo
Breast cancer screening in Brussels
www.brumammo.be

INCA
National Cancer Institute in France
www.e-cancer.fr

Société Belge de Chirurgie Plastique
www.rbsps.org

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FACING BREAST CANCER TOGETHER

THE DIFFERENT FACETS OF SUPPORTIVE CARE

Excerpt from a satisfaction survey conducted at two CHIREC Oncology Department sites

- Question: Please rank in order of importance on a scale of 1 to 10 (10 = most important) the features that you would like to find in an oncology department.
- Answer: Average order of importance (in 120 patients):

1) Competence and efficiency of the oncology team: 9.3
2) Receipt of information: 7.9
3) Personal and warm welcome: 7
4) Pain control: 6.5

People facing cancer experience physical, emotional, family and social changes. To meet these diverse needs, multi-professional global care offers additional comprehensive support, and access to cancer treatment from diagnosis and throughout the cancer continuum.

The oncology supportive care group is one of the Chirec Cancer Institute's cross-flow groups. It brings together various professional approaches, such as psycho-oncology, rehabilitation, physiotherapy, nutrition, social work, pain clinic, continuing and palliative care, speech therapy, smoking cessation, cosmetic care, etc.
These disciplines help relieve pain and other symptoms, alleviate the psychological suffering of patients and their relatives, foster greater tolerance of cancer treatments and improve communication. According to the treatment plan, the aim may be functional rehabilitation or comfort care.

The supportive care group brings together representatives from these various disciplines.

Its objectives are to stimulate validated initiatives in this area and to improve the integration of supportive care in overall cancer care: detection of psychosocial needs, availability of supportive care, interdisciplinary coordination.
Supportive care makes excellence in cancer care possible!

Dominique Bouckenaere,
Algology – Continuous

Role of breast physiotherapists

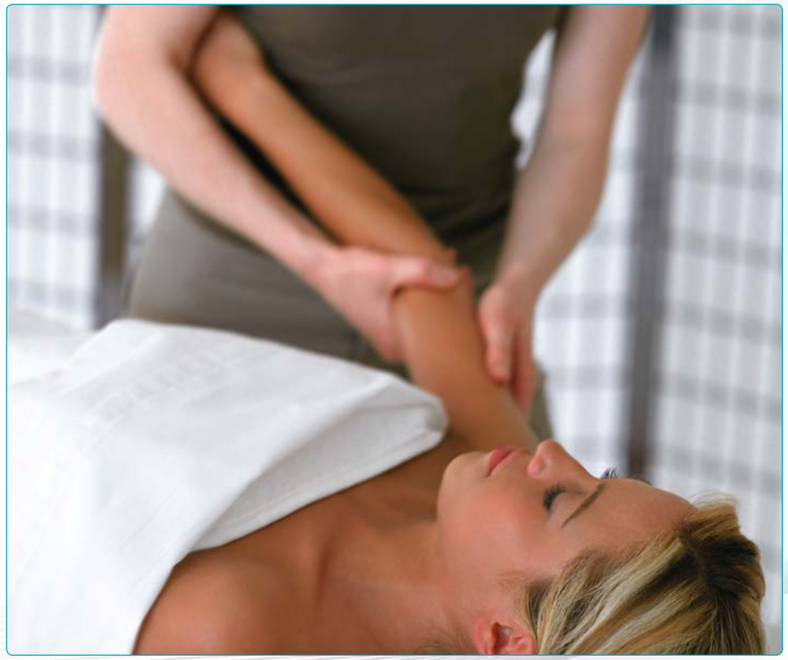

Photo Thinstock©

Physiotherapists are at your side from the day after the operation to mobilise your shoulder, massage your neck, explain the functioning of the lymphatic system and give you advice.

In the following weeks, lymphatic drainage and mobilisation is continued in the outpatient clinic or possibly in combination with radiotherapy.
During this process, we are available to advise you and adapt to your needs, in collaboration with the entire health care team.

Joseph Harfouche, Françoise Nicaise
Physiothérapists, Cavell

THE DIFFERENT FACETS OF SUPPORTIVE CARE

Key role of the nurse coordinator

Photo Caroline Levy©

L'infirmier(ère) coordinateur(trice) des soins en
The cancer-care nurse coordinator is qualified and specially trained to take care of patients with oncological diseases, and holds the professional diploma of Bachelor of Oncology Nursing.

This key player in the Breast Clinic aims to:

- Better guide and monitor the patient at different stages, such as on diagnosis, additional tests, treatment (s) and monitoring.
- Inform and support the patient. This is the best person to answer any of the patient's questions, and to make the link between all the different phases of treatment planning, while directing the patient to different professionals.
- Provide comprehensive care for all patients under his/her care and in the Multidisciplinary Oncological Consultation (MOC).

With skills in nursing, biomedical sciences, specific diseases, anatomy, nutrition/dietetics, medicines and IT (...), the nurse coordinator also has certain human qualities, such as a sense of responsibility, organisation, communication and of course discretion, respect and empathy to facilitate the patient's journey and the work of the carers.

Catherine Marlet,
Nursing Department, CHIREC

Psycho-oncology

The announcement of a breast cancer causes a break in the continuity of women's lives and can be very difficult to go through. Indeed, the diagnosis, which involves the bodily integrity, confronts the unexpected , the unknown can cause emotional disturbances often tinged with a sense of vulnerability, weakness , confusion or panic.

Breast cancer , which has the distinction of touching a part of the highly invested in the symbolic body, often induces a period of upheaval as individual interpersonally , in which questions are mobilized or suffering on femininity to married life , sexuality , the relationship with the children, the family and social balance or professional projects. The announcement of such a diagnosis also marks the beginning of a course of treatment , often challenging , where examinations , treatments and interventions are occurring at a rapid pace and can lead to feelings of helplessness and uncertainty.

Psycho-oncology essentially responds to the need to prevent the negative impact of the disease on the psyche of patients and their relationships with loved ones, avoid getting bogged down in feelings of guilt , resignation and others, to help find the words to talk about their illness and how they feel their spouse , their children, ... to maintain their ability to think and their discretion to channel their emotions, to support their desire to achieve through various projects and (re) may define their priorities.

The psycho-oncology team consists of three psychologists and a psychiatrist and offers individual interviews, couple or family during hospitalization and outpatient treatment.

Patricia Putseys et Daphné Grulois,
Psycho-oncologists, Chirec

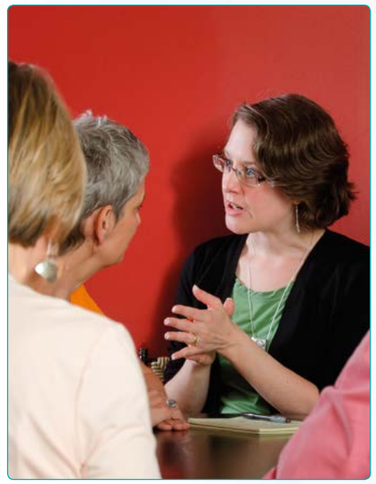

Photo Thinstock©

BEAUTY & WELL-BEING : two important multidisciplinary facets

Beauty and well-being are valuable allies that compensate for the misery caused by the disease: pain, fatigue, anxiety, loss of self-esteem, etc. Scrubs, masks, makeup and relaxing massages adapted to the pathology go far beyond the notion of aesthetics: they provide care and emotional support, and assistance to help patients take care of themselves and come to terms with their body. At the suggestion of the healthcare team, the beauty and well-being treatment is part of the therapeutic procedure, assists in the art of healing and enhances self-image for better self-care.

The Chirec Cancer Institute (CCI) beauty and well-being team

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FACING BREAST CANCER TOGETHER

SUCCESSFUL LAUNCH OF THREE PILOT PROJECTS AT THE CHIREC CANCER INSTITUTE
ONCOPSY – SENIOR ONCOLOGY – CHILDREN'S SPACE

The three quality projects at the Chirec Cancer Institute (CCI), presented as part of the Cancer Plan 2012-2013, were selected by the Federal Public Health and Safety and funded from July 1, 2012 for a period of three years.

ONCOPSY

Description
Oncopsy is a support group for groups of five to ten cancer patients, especially those with breast cancer. We chose the "psycho- educational group" model, for which the scientific literature has shown very positive results both in Belgium and internationally.
The programme includes eight two-hour sessions. The sessions are led by three therapists (two psychologists and a doctor) and organised around psychological and educational themes with time at the start of the session for participants to talk about their experiences between sessions. For educational themes, a specialised external speaker is invited. We ask patients to commit to all sessions. This creates a stable group, which allows them to build relationships and establish trust, a situation conducive to the expression of personal feelings and experiences. A preliminary interview with the psychologist is held before inclusion in order to verify the match between the patients' expectations and the group's goals.

Goals
The main objective is to allow people who have been through similar experiences to meet, accompany each other, build mutual support and share experiential knowledge (know-how from experience).
A multidisciplinary team with a dual purpose leads the group:

- Psychological goal: to assist patients facing the trials of cancer to help them rebuild themselves and better manage the issues related to the disease (stress, fatigue, relationships with relatives, going back to work, etc.)
- Educational goal: to provide practical advice from professionals and information about the disease, treatments and recommended behaviour

Results
We have formed four groups to date with 26 patients of whom 25 presented breast cancer up to 18 months after diagnosis. In the last group, we created an opening for a highly motivated patient with another disease.

We were struck by the constructive spirit and energising atmosphere that prevailed in these groups. All patients took part with warmth, sincerity, kindness and mutual respect. Solidarity has grown to such an extent that all the groups have decided independently to continue their joint meetings after the programme. No patient left the group and the rate of absence at a session was extremely low. The evaluation questionnaire and spontaneous testimonies of patients confirmed these excellent results. Statistical evaluation will be presented in a subsequent article.

Dominique Bouckenaere
coordinating physician
specialising in supportive care
Daphné Grulois
onco-psychologist with psychoanalytical focus at Chirec
Camille Henne
external psychologist in cognitive behavioural orientation

We would like to thank our experts (Dr V. Mendez, Dr F. Bastin, Ms E. Grellier, Ms J. Wiseleer, Ms F. Nicaise and Ms C. Hallez) for their expertise, highly appreciated by patients, and their voluntary participation in the groups.

If you are interested or would like more information:
Tel.: 0032 (0)2 287 5764
dominique.bouckenaere@chirec.be

L'espace enfants

- Your child is confronted by a relative's cancer (parent, brother or sister, grandparent, uncle or aunt).
- You are reluctant to speak about it or take your child to visit your relative.
- You are concerned that your child will feel out of place in a hospital room or that the visit will be distressing.
- You are worried about your child's attitude, questions or silence.
- You have the impression that your child is frightened, or feels angry or alone.
- You feel that meeting other children in the same situation would support and encourage your child.

We invite your child to come to the CHIREC children's space.

The children's space is:
A place to meet, talk and interaction for children and teenagers confronted with a relative's illness.
A place where speaking, acting, creativity, games and reading are possible.
A meeting point to express emotion, exchange dialogue, answer children's questions, with the aim of rebuilding bonds with relatives and helping them cope with a difficult experience.
Open every Wednesday afternoon from 2pm to 6pm.

CHILDREN'S SPACE

For whom, by whom, where, when, how?

For whom?
Any child or teenager of relatives with cancer who are under the care of CHIREC.
By whom?
Daphné Grulois, CHIREC psychologist in collaboration with Sophie Buyse from the Cancer and Psychology Association who both specialise in the psychological supervision of children of relatives with cancer.
Where?
329 rue Vanderkindere, Clinique Edith Cavell annexe, 1180 Brussels, Belgium.
When?
Wednesday afternoons from 2pm to 6pm.
How?
Reception of children during the opening hours.
No cost.

Psychologie CHIREC
0032 (0)2 340 4840
Daphné Grulois

in collaboration with
Cancer et Psychologie a.s.b.l.
Sophie Buyse

Cancer et Psychologie a.s.b.l.

Cancer and Psychology
Oncological Care Coordination
Clinique Edith Cavell, CHIREC,
0032 (0)2 340 4676
Delphine Moreau

SENIOR ONCOLOGY

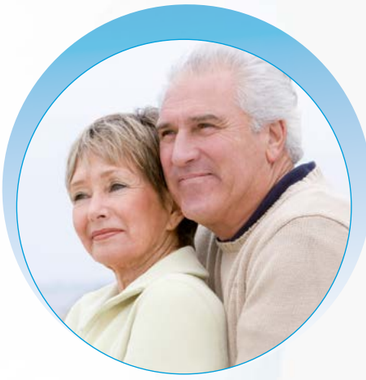
Personalised care of elderly patients with cancer

Elderly cancer patients, already numerous, will represent an increasingly greater share of the population due to the ageing of the latter and a reduction in mortality from cardiovascular disease. The Chirec Cancer Institute (CCI) has established a senior oncology programme recognised by the National Cancer Plan.
Since early 2008, the various Chirec sites include structured oncology activity at the CCI. "The goal is to provide personalised and humane quality care to patients with cancer. At the CCI, we diagnose 1,400 new cancer patients each year, of which 41% are aged 70 and over. By 2020, it is envisaged that 60% of patients with cancer will be aged 70 and over."

Patients most at risk
Given this fact, in Belgium and in neighbouring countries, awareness has been raised about the importance of quality of care for patients over 70 years. While National and International Recommendations ("Guidelines") have been established for younger patients, these are not necessarily suitable for older patients, who are more likely to have other health issues that may interfere with cancer treatment. These patients often suffer from other diseases, take several medications, present with malnutrition, memory and fall-risk issues, and may live in difficult socio-economic circumstances. In such situations, the cancer symptom may be masked, sometimes delaying diagnosis and treatment. Before making a medical decision, it is essential to consider the elderly patient's entire circumstances.

Personalised therapy
Twenty hospitals in Belgium have developed a structured geriatric oncology programme recognised by the National Cancer Plan. At the CCI, this programme has been developed since October 2012. The goal is to improve the care of senior cancer patients. It aims to provide an individualised response to these patients' multiple issues and reconcile the aggressive therapeutic approach to cancer and the fragility of the patient. Within Chirec, we wished to explore the calculation of the chemotherapy toxicity risk in each patient treated. We therefore adapted the existing database to allow us to assess the situation more accurately and provide the most appropriate treatment. In addition, we make every effort to ensure regular monitoring of our patients at home, in nursing homes or in the hospital. To this end, we have formed a multidisciplinary team including a nurse coordinator.
At the CCI, we are also very attentive to the socio-economic situation of patients. "Elderly cancer patients are twice as vulnerable: a small pension, many medical expenses, little knowledge of available support (Foundation against Cancer, health insurance, etc.). As part of our programme, a social worker will give patients the best advice possible, because in addition to its quality goals and personalised care, the CCI seeks to make its care accessible to all."

Dr Fabienne Bastin
Medical Oncologist, CHIREC



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FACING BREAST CANCER TOGETHER

HEREDITARY PREDISPOSITION TO BREAST CANCER

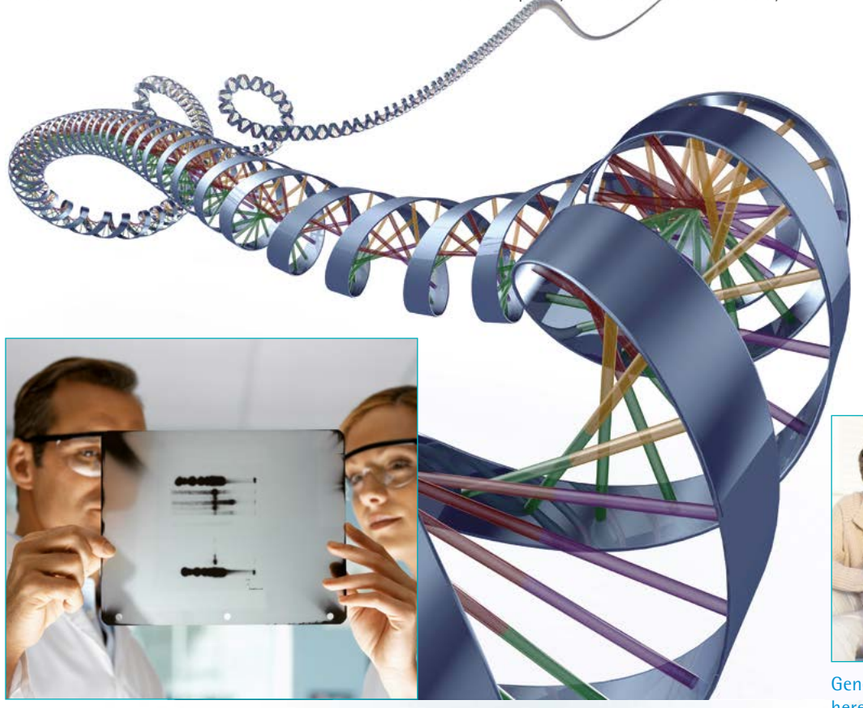
Breast cancer affects one in ten women in our country, and for most of them, genetic testing is not useful. As cancer is common, two women in the same family, for example mother and daughter, may be affected purely by chance.

However, there are special cases: 5% to 10% of breast cancers, like 5% to 10% of ovarian cancers, result from an inherited predisposition due to a particular gene malfunction. Breast cancer and ovarian cancer often appear in several related women, and often at a relatively early age, before 40 or 50 years. This anomaly is called a gene mutation. In these families, the mutation can be passed by a man or a woman to a son or daughter, but in practice, the consequences will only appear in women. In women, this change significantly increases the risk of breast cancer (70%) and the risk of ovarian cancer.

Knowing the risk, we can intervene. The basic approach is annual monitoring by breast imaging (repeated ultrasound, mammography and breast MRI from the age of 25 years), clinical breast examination by a gynaecologist or breast specialist also on an annual basis but six months after imaging, early treatment of all developing breast tumours as well as surgical resection of the ovaries and fallopian tubes at 40 years. Other options, such as preventive mastectomy, can be discussed on a case-by-case basis but it is not routinely recommended.

The gene in question is either BRCA1 or BRCA2 according to the families, and a full analysis is required for each new family concerned because almost every family has a different mutation. The BRCA gene test is not recommended for all women who present with breast cancer. The genetic counselling service will specify if a test is useful or not by establishing the personal and detailed family history. In general, the analysis must begin with a blood sample from a woman with breast cancer or ovarian cancer. This analysis takes several months. Only then, if a mutation is identified, may a test be proposed to those at risk, such as girls and young healthy adults (pre-symptomatic genetic test). This will only happen in the context of a multi-step process, through genetic counselling, most notably for anticipating the results of the test.

Prof. Marc Abramowicz,
Medical Geneticist
Director, Centre for Human Genetics, ULB
Professor, Medical Genetics, ULB



The sequence of bases in DNA is the genetic chain: it has about 30,000 genes. Two of them, BRCA1 and 2, when mutated, can transmit breast cancer by heredity.

Advances in genetics have now routine, performing tests demonstrating the presence of mutations responsible for hereditary breast cancer. A simple blood test only in patients suspected of carrying a mutation.

Photos Thinstock©

Gene mutation BRCA 1 and 2, responsible for hereditary breast cancer, can be transmitted by men or by women: it is essential, in these situations, to attend genetic counseling, to study the transmission of this mutation in the family, and to define who is a carrier of the mutation, and who is not.

AROUND THE ASSOCIATIONS

Helping women stay beautiful during and after illness

This is the goal of Catherine Barber and Julie De Groote. Toujours Belle (Always Beautiful in English,) in Brussels, is a one-stop destination for all the products and services necessary for the well-being of women in their daily struggle. In a warm and friendly ambience, we listen to women to help them find femininity, their femininity! Most importantly, we aim to make them feel their best by offering a range of suitable products and services. We want to give every woman the opportunity to stay feminine in spite of their illness and without having to go to several stores to find what they really need. Together, we choose wigs, turbans, underwear... but we also offer makeup, skin care and image advice.
As is well-known, chemotherapy often causes hair loss, a side effect that many women fear. Fortunately, today there are very natural alternatives, such as wigs that have changed dramatically in recent years to become lighter, more comfortable to wear and undetectable. These are often fully reimbursed through health insurance or other insurance, and certain foundations or associations.
Turbans have become trendy in recent years; this has enabled us to extend the range and offer more and more brands that follow the fashion seasons. After a mastectomy, wearing an insert and a suitable bra that includes a pocket for the insert is often necessary. Some brands, such as Amoena and Anita, specialise in a feminine and comfortable range. We also offer a large selection of swimwear, and more recently, sportswear, tops, dresses and pyjamas have made their way into our showroom.
Finally, in order to offer our patients the best advice, we work with several partners who offer a personalised service. Monica Jacquet is our charming medical equipment supplier who can advise you in the choice of an insert. Eric Van Dooren is an image consultant on shapes and colours: whether for skin, hair or body language, everything is taken into account according to the seduction criteria. We are dealing with a professional for whom idealising women is a way of life.

With Toujours Belle, we hope, in our own way, to make your life easier.

Toujours Belle,
119 avenue Montjoie, 1180 Brussels, Belgium
0032 (0)475 679 445
0032 (0)479 630 555
www.toujoursbelle.be
bruxelles@toujoursbelle.be

Medical equipment supplier, Monica Jaquet:
monica.jacquet@vigogroup.eu
0032 (0)475 235 597

Image consultant, Eric Van Dooren:
conseil.imagevando@gmail.com
0032 (0)476 516 898

Cécile & Sophie, together we fight back much better

Both diagnosed with breast cancer, we met in Bordet in 2008.
Our friendship grew very quickly and prompted us to tell our story in our first film, **It's Our Story**, produced in 2010.
Encouraged by the enthusiastic response to our testimony, we decided to broaden the discussion by presenting a dozen patients from diverse backgrounds in a more didactic documentary, which will be called **It's Their Story**.
This film has several goals:

- TO INFORM AND TONE DOWN: by debunking the "fantasies" about cancer, by informing the patient about the different stages of the disease, diagnosis, treatment, reconstruction, post-cancer. The film also addresses patients' relatives and friends, often helpless against the disease.
- TO ELIMINATE TABOOS: by showing that other patients face the same successive feelings of anxiety, rebellion, courage, hope and return to life. Daring to speak out and express one's fears provides the opportunity for family and friends to help the patient.
- TO SEND A MESSAGE OF HOPE: with a short overview of cancer care, the film shows that after treatment, there is healing, rebirth and reconstruction. **It's Their Story** aims to show that cancer, as terrible as it is, can still be seen as a journey of meetings, joy and deep feelings, and it can provide an opportunity to make changes for a better, fuller life.
- TO ISSUE A PREVENTION MESSAGE: this guide gives some advice in terms of prevention (nutrition / sport / "positive attitude", etc.)

In making this film, we want to show patients the dark side, but also a "brighter" side of the disease. This guide will provide invaluable support, giving them hope and encouraging them to cope without being too fearful of the road ahead.

You can see our first film, **It's Our Story**, and the **It's Their Story** "teaser" on our website: cecileetsophie.be/nos films.

Associations speak out!

Europa Donna's 10 goals

1. Promote the dissemination and exchange of accurate and up-to-date information on breast cancer.
2. Encourage women to check their breasts regularly.
3. Emphasise the need for organised quality screening and early diagnosis.
4. Demand the best treatments.
5. Provide quality psychosocial support during and after treatment.
6. Demand appropriate training of all health professionals.
7. Inform women about the treatment options, including participation in clinical trials and the right to seek a second opinion.
8. Demand regular quality control of medical and technical equipment.
9. Search and promote the best results in medical practice.
10. Obtain sufficient investment for scientific research on breast cancer.

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FACING BREAST CANCER TOGETHER

Testimonies

The outpatient clinical team welcomes patients receiving chemotherapy. Here are some heart-warming stories about the team known as «C4» (Cavell Building C, 4th floor)

" This is a great team, a ray of sunshine for the sick. I often come alone and such a caring team gives me the courage and strength to move forward and overcome the disease."

" The disease teaches us a great lesson about life and priorities. We meet some good people at the outpatient clinic thanks to a great team. The service is well organised despite the limited space."

" The nurses and the secretary give us a lot of attention and humanity. They help us to imagine life after our illness. During treatment, we are pampered and we feel good."

" What a joy to come to C4 and be the centre of attention. Here, I can be myself."

DONATE

If you would like to support research at the CCI, contact us on +32 (0)2 340 4662 or at cancer.institute@chirec.be

or write to us at the Chirec Cancer Institute
CCI – rue Edith Cavell 32, 1180 Brussels, Belgium

FONDATION care CHIREC ACTION FOR RESEARCH & EXPERTISE FONDATION D'UTILITE PUBLIQUE

The Care Foundation was established to promote quality scientific research in the different CHIREC clinics. It supports CCI's efforts in the area of clinical cancer research.

The Care Foundation provides a tax reduction certificate for annual donations of 30 euros and above.

Account number: 375-1047853-41 – ING BANK
Details to be noted on the bank transfer: CCI CANCER RESEARCH

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