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Original article

Impact of screening on clinicopathological features and treatment for invasive breast cancer: Results of two national surveys



Impact du dépistage sur les caractéristiques histopathologiques et les traitements du cancer du sein invasif: résultats de deux observatoires nationaux

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ABSTRACT

Purpose. – Several studies showed a breast cancer downstaging due to screening. A first national survey was conducted in France in 2001–2002 to evaluate in the current clinical practice the clinicopathological features and treatments of 1049 firstly operated breast cancers. In order to assess the impact of the national screening program implemented in all regions in France in 2004, a new survey was performed in 2007–2008.

Material. – The new survey included 1433 firstly operated breast cancers prospectively collected. These new data were compared to the results of the first national survey.

Results. – According to TN classification, we found in the second survey T₀: 27.6%, T₁: 48.6%, T₂: 21.3%, T₃T₄: 3.8% and T_x: 0.7%. Infiltrating ductal and lobular carcinomas represented 80% and 13% of tumours. Hormone receptors were positive in 85.3% and Her-2 overexpressed in 12.4% of tumours (83.9% and 20.6% in the first survey); 68.2% and 32% were pN₀ and pN₁₋₃. Lumpectomy and mastectomy were performed in 77% and 23% of the cases. Axillary dissection, sentinel node biopsy or both were performed in 42.6%, 41% and 16.4% of the cases, respectively. Radiotherapy, chemotherapy, hormonotherapy and trastuzumab were given to 93%, 51%, 83% and 9.3% of the patients. Compared with the results from the first survey, we found an increase of infraclinical lesions (T₀ from 8.4 to 27.6%) and a wide decrease of pN+ rate (from 44% to 32%). The mastectomy rate was constant (23%), as well as radiotherapy use, whereas chemotherapy use decreased from 62.8 to 55.6%.

Conclusion. – A complete national screening coverage clearly provides a favourable modification of breast cancer clinicopathological features. Both locoregional and adjuvant treatments were greatly downscaled.

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R É S U M É

Objectif de l'étude. – De nombreuses études ont montré une réduction de la taille des cancers du sein découverts grâce au dépistage. Un premier observatoire national avait été conduit en France en 2001–2002 pour évaluer les caractéristiques histopathologiques et les modalités de traitement de 1049 cancers du sein opérés d'emblée. Afin d'évaluer l'impact du dépistage généralisé déployé sur l'ensemble du territoire en 2004, un nouvel observatoire a été réalisé en 2007–2008.

Mots clés :

 Cancer du sein
 Envahissement ganglionnaire axillaire
 Âge
 Dépistage

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Chirurgie
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Matériel. – Le nouvel observatoire a concerné 1433 cancers du sein opérés d'emblée. Ces données ont été comparées à celles du premier observatoire.

Résultats. – En accord avec la classification TN, il a été retrouvé dans le deuxième observatoire 27,6 % de cancers de stade T0, 48,6 % T1, 21,3 % T2, 3,8 % T3–T4 et 0,7 % Tx. Les carcinomes canalaux et lobulaires infiltrants représentaient 80 % et 13 % des tumeurs. Les récepteurs hormonaux étaient exprimés dans 85,3 % des tumeurs, une surexpression d'Her-2 a été retrouvée dans 12,4 % des cas, 68 % des tumeurs ont été classés pN0 et 32 % pN+. La chirurgie a consisté en une tumorectomie dans 77 % des cas et une mastectomie dans 23 %. Un curage axillaire a été réalisé dans 42,6 % des cas et un prélèvement des ganglions sentinelles dans 41 %, avec une double procédure dans 16,4 %. Une radiothérapie a été prescrite dans 93 % des cas, une chimiothérapie dans 51 %, une hormonothérapie dans 83 % et le trastuzumab dans 9,3 %. Par rapport au premier observatoire, il a été retrouvé dans le deuxième une augmentation des lésions infracliniques (27,6 % de cancers de stade T0 contre 8,4 %) et une réduction importante du taux d'atteinte ganglionnaire (de 44 à 32 %). Les taux de mastectomie et d'indication de la radiothérapie sont restés constants, alors que celui de la chimiothérapie a diminué de 62,8 à 55,6 %.

Conclusion. – Le déploiement à l'échelle nationale du dépistage a clairement permis une modification favorable des caractéristiques clinicopathologiques des cancers du sein. Les traitements locorégionaux et adjuvants ont pu être ainsi notablement allégés.

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1. Introduction

In 2005, 49,800 new infiltrating breast cancers occurred in France, representing the first female cancer (36% of the cases) [1]. The incidence increased by 60% over the last 20 years, while mortality rates remained stable. This fact was due to the improvement of locoregional and systemic treatments, as well as increased discovery of smaller tumours by screening with more favourable histoprognostic factors, such as confirmed by several studies [2–5]. In France, the mammographic screening program started in 1989 in six departments. It was then extended to 30 departments in 2001 and to all regions in 2003–2004 (including women aged 50 to 74). In 2001–2002, a first national survey was conducted including 1159 new infiltrating breast cancers in France, in order to assess tumour characteristics and use of locoregional and systemic treatments in the current clinical practice. The main results were published in a previous report [6]. In 2007–2008, a new national survey was performed in order to compare similar features after the completion of a full coverage-screening program.

2. Material and methods

2.1. Survey design and patient inclusion criteria

From June 2007 to June 2008, the new national survey included 1647 patients with infiltrating breast cancer. Of these, 214 (13%) were excluded for further analysis: 59 (3.6%) with synchronous metastases and 155 (9.4%) who had undergone neoadjuvant chemotherapy. In the first survey, 40 (3.5%) and 70 (6%) of the patients had the same characteristics. Therefore, a total of 2482 (1049 plus 1433) patients firstly operated were included in the assessment of all clinicopathological features and treatment modalities for both surveys. All data were compared in details with previous national survey [6].

Both studies were multicentric, observational, prospective and non selective. The second survey involved 130 physicians (124 in the first survey) working in cancer centres (23%), general (15.5%) or teaching (13%) hospitals or private clinics (48.5%). Eligible patients were female and at least 18 years of age, with a diagnosis of infiltrating breast cancers, regardless of disease stage.

2.2. Data definition and collection

Demographic (age, family history of breast cancer, menopausal status), clinical (TNM classification, American Joint Cancer

Classification [AJCC]) and pathological characteristics (histological subtype, Scarff-Bloom-Richardson [SBR] histoprognostic grading, pathological tumour size [pT], axillary lymph-node involvement [pN], hormone receptors and human epidermal growth factor receptor-2 [Her-2] oncogene expression were collected. In addition, treatment modalities (breast-conserving surgery or mastectomy, axillary surgery, radiotherapy, chemotherapy and hormonal treatment) were recorded.

2.3. Statistics

All analyses were carried out with SAS® V8.2 software (SAS Institute, Cary NC, USA). Comparisons were made using the Chi² test. Sampling was stratified by age (less than 40, 40–49, 50–70, over 70 years), tumour size (pT_{1a-b}, pT_{1c}, pT₂, pT₃₋₄), axillary nodal status (pN₀/pN+), menopausal status and treatment (type of surgery/radiotherapy, chemotherapy, hormonal treatment).

3. Results

3.1. Demographic characteristics in the second national survey

Median age was 58 years (range: 23–95 years). Patients less than 40 years old made up 7% of the sample (5.5% in the first survey) and those over 70 represented 22.4% (20.4% in the first survey). In the second survey, 988 patients (69%) were menopausal (65.7% in the first survey). A family history of breast cancer (first and/or second degree) was found in 30% of the cases (25.8% in the first survey).

3.2. Clinical features

Among 1433 firstly operated evaluable patients, we found 395 T₀ lesions (27.6%; mammographically detected), 669 T₁ (48.6%), 304 T₂ (21.3%), 54 T₃T₄ (3.8%) and 11 T_x lesions (0.7%). There were 1239 N₀ (86.7%), 141 N₁ (9.8%), 25 N₂N₃ (1.8%) and 28 N_x (1.8%).

3.3. Radiological features

Among the entire population, 886 tumours (52.6%) were detected by mammography and 780 (47.4%) by clinical symptom (tumour in 88% of the cases). The ratio of radiological/clinical detected tumours was significantly different before and after 50 years old (31.3%/68.7% versus 60.8%/39.2%, respectively, $P < 0.001$).

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