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Waiting times for diagnosis and treatment of head and neck cancer in Denmark in 2010 compared to 1992 and 2002

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Abstract ***Background and aim:*** Significant tumour progression was observed during waiting time for treatment of head and neck cancer. To reduce waiting times, a Danish national policy of fast track accelerated clinical pathways was introduced in 2007. This study describes changes in waiting time and the potential influence of fast track by comparing waiting times in 2010 to 2002 and 1992.

Methods: Charts of all new patients diagnosed with squamous cell carcinoma of the oral cavity, pharynx and larynx at the five Danish head and neck oncology centres from January to April 2010 ($n = 253$) were reviewed and compared to similar data from 2002 ($n = 211$) and 1992 ($n = 168$).

Results: The median time to diagnosis was 13 days (2010) versus 17 days (2002; $p < 0.001$) and 20 days (1992; $p < 0.001$). Median days from diagnosis to treatment start were 25 (2010) versus 47 (2002; $p < 0.001$) and 31 (1992; $p < 0.001$). Total pre-treatment time was median 41 days in 2010 versus 69 days (2002) ($p < 0.001$) and 50 days (1992; $p < 0.001$). Significantly more

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diagnostic imaging was done in 2010 compared to 2002 and 1992. When compared to current fast track standards the adherence to diagnosis improved slightly from 47% (1992) to 51% (2002) and 64% (2010); waiting time for radiotherapy was within standards for 7%, 1% and 22% of cases, respectively; waiting time for surgery was within standards for 17%, 22% and 48%, respectively.

Conclusion: The study showed a significant reduction in delay of diagnosis and treatment of head and neck cancer in 2010, but still less than half of all patients start treatment within the current standards.

1. Introduction

Waiting time for diagnosis and treatment of head and neck cancer is of concern since delay may reduce local tumour control and survival rates.[1] Studies have shown that increasing tumour size is associated with a reduced tumour control probability.[2–4] By comparing diagnostic and treatment planning computed tomography (CT)-scans during preparation time for head and neck cancer treatment, a median tumour volume doubling time of 96 days (21–256) and a tumour control probability reduction of 16% (from 63% to 47%) were found.[5] In a similar study, tumour volume doubling time was as short as 30 days for the 50% patients with the fastest growing tumours, and during a median time of 28 days, 34% of patients showed progressive disease measured by either tumour-node-metastasis (TNM) and/or Response Evaluation Criteria in Solid Tumours (RECIST) criteria.[6] Several clinical studies have shown a correlation between long time spans before treatment and poorer outcome.[7–9] A meta-analysis of the available 20 high quality studies including breast cancer, head and neck cancer and sarcomas showed that the risk of local failure was significantly associated with prolonged waiting.[10] Eight studies concerning head and neck cancer were included and the relative risk of local recurrence in this group after definitive radiotherapy (RT) was 1.15 for every month of delay.

Unfortunately, while evidence of the hazard of waiting emerged, waiting times on diagnosis and treatment of cancer were continuously rising in several countries, including Denmark.[1,11–13]

Therefore the Danish government and public health services in 2007 declared that all new cancer patients should be diagnosed and treated without delay in a fast track accelerated clinical pathway. Headed by the National Board of Health, a number of multidisciplinary working groups were established, each including representatives from the specific medical specialties, the five health care regions, the general practitioners and other stake holders. These groups developed clinical pathways, including time standards for all steps in the clinical work up and an organisational schedule.[14] The principle of the fast track involved changes from a sequential to a parallel set-up where diagnostic and preparatory procedures were conducted simultaneously to reduce waiting time. Practical solutions included instant referrals and triaging using dedicated hotlines to specialists and patient co-ordinators as well as reserved slots for clinical examination, biopsy and imaging. Fast pathology was followed directly by multidisciplinary team (MDT) boards and joint clinics enabling immediate information on final diagnosis and treatment decisions. The diagnostic package for head and neck cancer was developed in collaboration with the Danish Head and Neck Cancer Group (DAHANCA) and implemented during 2007.[15]

The aim of this study was to describe the waiting times for diagnosis and initiation of treatment of head and neck cancer in Denmark in 2010 compared with 2002 and 1992, with special emphasis on the adherence to the current national standards.

2. Materials and methods

2.1. Study group

A total of 642 patients with squamous cell carcinoma of the oral cavity, pharynx and larynx were included in a review (Table 1). The patients represented three cohorts of consecutive new patients referred to the five head and neck oncology centres in Denmark from January through April in the years 2010 ($n = 253$), 2002 ($n = 221$) and 1992 ($n = 168$), respectively. Patients with recurrence were excluded.

The same methodology as used in the 1992–2002 comparison by Primdahl et al. was applied in this study.[11] Data from the earlier study were included in this study in addition with unpublished 1992/2002 data from oral cancer patients. Patients were identified from the DAHANCA-database where key data had been prospectively recorded. For the current report an additional chart review was conducted since the database was not complete, and had not initially captured all relevant dates, e.g. date of first suspicion of cancer and date of final diagnosis. The additional data were retrieved from patient charts and/or referral letters.

Table 1 shows the study group characteristics. The distribution of age and gender was the same in the three periods. Distribution of tumour site changed over the