Weight loss in head and neck cancer patients little noticed in general practice

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ABSTRACT

INTRODUCTION: In head and neck cancer patients, weight loss increases morbidity and mortality, and decreases treatment tolerance and quality of life. Early nutritional intervention has beneficial effects on these factors.

AIM: We observed patients' weight courses after specialists' care and surveyed nutrition-related documentation by general practitioners (GPs).

METHODS: From a Head and Neck Oncology Centre (HNOC) study, 68 patients were asked to participate in an extended general practice cohort. Twenty-six patients participated in the prospective three-monthly weight measurements during the year after HNOC care. We extracted nutritional information contained in referral letters (n=24) and medical records from the year before referral (n=45) and after HNOC care (n=26). An impaired nutritional status was assigned to weight loss ≥10% within six months or Body Mass Index (BMI) <18.5 kg/m^2 and 'at risk' to weight loss ≥5% but <10% within six months.

RESULTS: Three (12%) participants were nutritionally impaired and two (8%) were deemed 'at risk'. Although GPs suspected a (pre-) malignancy in 11 cases (46%), only two (8%) documented weight loss or BMI and four (17%) nutrition-related complaints in their referral letters. Medical records more often contained information on nutrition-related complaints and tube feeding later in the disease course, as opposed to concern over weight loss or BMI.

DISCUSSION: Therefore, we call for nutritional management in general practice, by urging practitioners to assess patients' nutritional status throughout the disease course and intervene if necessary. The passing on of related information in case of referral promotes continuity of care.

KEYWORDS: Humans; follow-up studies; weight loss; cachexia; family practice; head and neck neoplasms

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Introduction

Nutritional deficiency ranges from micro- to multiple macronutrient shortages and results from physiologic (e.g. starvation) and/or pathologic conditions. Cachexia is such a complex pathologic hyper-metabolic condition defined by unintentional weight loss of greater than 5% of the premorbid weight within the previous six months.[1] In general, the World Health Organization defines underweight as a Body Mass Index (BMI) <18.5 kg/m^2.[2]

Head and neck cancer patients are at evident risk for nutritional deficiency. Multiple factors undermine their nutritional status: a premorbid lifestyle with poor dietary habits, often combined with excessive smoking and alcohol consumption,[3] the tumour location, which causes

swallowing and food passage difficulties and, finally, the oncological treatment side effects.[4]

Weight loss in these patients increases morbidity and mortality and decreases treatment tolerance and overall quality of life.[5-7] Early and intensive nutritional intervention has produced beneficial effects on weight loss, quality of life and physical function in oncology outpatients receiving radiotherapy.[8] Therefore, physicians should recognise and intervene early in cases of cachexia, starting with primary care, since in the hospital already 30–50% of the head and neck cancer patients are undernourished. The current practice by general practitioners (GPs) of tracing or intervening in case of cachexia before referral and the necessity of additional care after hospital treatment, has never been studied.

Squamous cell carcinomas of the oral cavity, oropharynx and hypopharynx (OOH) are relatively rare: on average a Dutch GP sees a 'new' OOH carcinoma patient every five to 10 years. However, GPs treat more cachexia-related diseases in their practices, such as COPD and heart failure. Since the risk for nutritional deficiency in head and neck cancer patients is generally known, we chose this group to exemplify current nutritional management in general practice.

In a prospective, observational study performed at a Head and Neck Oncology Centre (HNOC), 22 of the 68 (32%) OOH cancer patients were 'at risk' for, or suffered from, cachexia before treatment and their weight decreased even further during specialists' care.[4]

To illustrate the possible relevance and current nutritional management in general practice, we observed these patients' weight courses after HNOC care and surveyed documentation of weight loss, BMI, nutrition-related complaints, and interventions by GPs the year before referral and after HNOC care.

Methods

Study frame

Between March 2004 and May 2005, after approval of the local Committee on Research Involving Human Subjects, we extended a study performed in an HNOC to general practice. Of the 150 consecutive newly-referred patients with squamous cell OOH carcinoma, 116 were willing to participate. However, 68 patients met the inclusion criteria; age ≥18 years, primary tumour stage II–IV (UICC TNM-tumour classification),[9] no history of malignancy and a primary curative treatment intent.[4,10] At that time, all 68 patients signed an informed consent form for the use of their medical records.

Twelve patients already had died during oncological treatment in the HNOC. In the Dutch health care system patients are registered with one general practice, which supplies the professional medical care, including referrals to medical specialists. Therefore, we verified at general practices if patients were still alive, before asking them to participate. They received an informed consent form by mail, to authorise three-monthly weight measurements during one year and/or the use of their medical records. We subsequently sent the signed consent forms to the cooperating GPs. Before each weight measurement, the participant received a reminder letter with a weight registration form and pre-printed reply envelope. This form registered date, body weight (in kg) and dress (no or lightweight clothing, with/without shoes) and was filled out during each follow-up visit. For the 68 patients recruited in the HNOC, we looked up the primary referral letters available. We requested GPs to make available the medical record of participants and those who had died, from the year before referral and, if applicable, the year after HNOC care.

WHAT GAP THIS FILLS

What we already know: Preventing weight loss in head and neck cancer patients decreases morbidity and mortality, but above all increases treatment tolerance and quality of life. In the hospital, 30-50% of the head and neck cancer patients are undernourished, and weight even further decreased during specialists' care.

What this study adds: GPs documented weight loss, BMI, nutrition related complaints or interventions in the minority of these patients, while the year after hospital care 20% was 'at risk' or nutritionally impaired.

Main outcome measures

In the HNOC, body height and weight had been measured by a dietician with a Seca-stadiometer and Seca-weighing scales (in metres (to two decimal places) and kilograms (to one decimal place), respectively). During HNOC visits, questionnaires were filled out concerning nutritional information, such as energy (protein) supplements and tube feeding.[4;10] After HNOC care, body weight was measured with GPs' weighing scales (in kilograms (one decimal)) and adjusted by 0.3kg when the participant wore shoes. No correction for differences in dress were made.

We classified participants who lost 10% or more of their previous weight within six months, or those with a BMI <18.5 kg/m^2 at the final weight measurement, as nutritionally impaired. If they lost between five and 10% of their previous weight within six months, they were classified as 'at risk' for an impaired nutritional status.

Documentation of information concerning the nutritional status in the referral letters and medical records were tallied and/or listed, also that related to comorbidity. This included weight loss or the BMI, nutrition-related complaints like swallowing or food passage difficulties and interventions such as GPs' nutritional advice, energy (protein) supplements, treatment by a dietician and tube feeding (nasal passageway, Percutaneous Endoscopic Gastrostomy (PEG) or Percutaneous Radiological Gastrostomy (PRG)). The three-monthly weight measurements documented in medical records were excluded, since these were not part of the usual care. The medical history, derived from medical records from the GPs and HNOC, was summed up to provide information on possible nutritional deficiency or fluid retention. Through referral letters, the differential diagnosis of the GPs was extracted.

Table 1. Characteristics of patients at intake at HNOC

Variable		n (%)
Age (years)	30–60	39 (57)
	61–83	29 (43)
Tumour location	Oral cavity	36 (53)
	Oropharynx	25 (37)
	Hypopharynx	7 (10)
Tumour stage	T2	37 (54)
	T3	19 (28)
	T4	12 (18)
Treatment	Radiotherapy	25 (37)
	Surgery	19 (26)
	Surgery and radiotherapy	14 (22)
	Chemotherapy and radiotherapy	10 (15)
Energy (protein) supplements	Yes	23 (34)
	No	45 (66)
Tube feeding	Nasal passageway	1 (2)
	No	67 (98)

T2=tumour between 2 and 4 cm
T3=tumour larger than 4 cm or any size
T4=tumour of any size, but invading adjacent structures.

Statistical analysis

We analysed the data using the Statistical Package for Social Sciences (SPSS), version 12.0.1 (SPSS Corporation, Chicago, IL, USA). Characteristics of patients at intake and related documentation of the nutritional status in the referral letters and medical records were computed by frequency tables, and presented in numbers and percentages. The mean overall survival was the percentage of participants still alive from the date of intake in the HNOC until the first weight measurement in general practice. Weight change (%) within follow-up intervals and BMI (kg/m^2) at the final weight measurement were analysed and expressed by means with associated range and standard deviations. With Chi-square we tested if differences occurred in documentation quantity of information within medical records before referral and after HNOC care. The latter was calculated including and excluding documentation related to comorbidity. The level of significance was set at p<0.005.

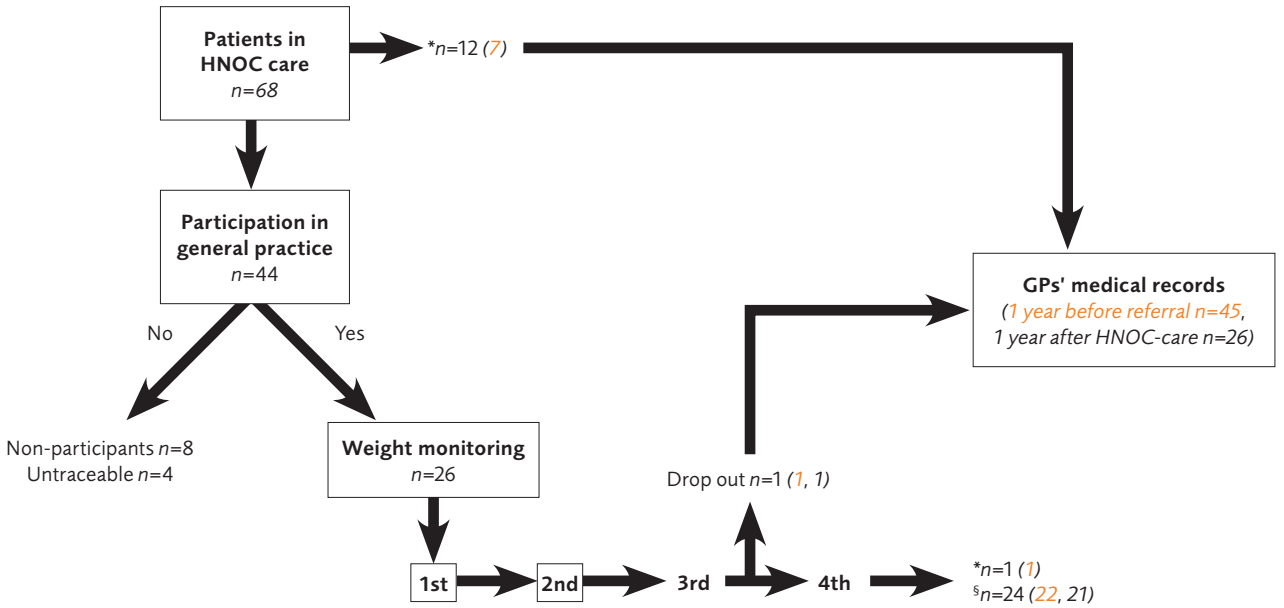
This study received ethical approval from the Arnhem/Nijmegen Committee on Research Involving Human Subjects in the Netherlands, reference number of approval CMO-nr: 2001/208.

Results

Participants

Table 1 shows the main characteristics of the study population at HNOC intake.[10] In decreas-

Figure 1. Participant flow during the HNOC and extended general practice study



* Dead
§ Alive
Number of medical records one year before referral (in orange italics) and one year after HNOC-care (in black italics)

ing order the tumour location was the oral cavity (53%), oropharynx (37%) and hypopharynx (10%). Of all patients, 37 had a tumour sized between 2 and 4 cm (T2), 19 had a tumour larger than 4 cm or any size (T3) and 12 of any size invading adjacent structures (T4). Most patients were treated by radiotherapy (37%), surgery (26%) or a combination of these two (22%). The remaining participants were treated by chemotherapy and radiotherapy. At the first HNOC visit, 23 (34%) patients used energy (protein) supplements, of which two were referred by the GP and 20 by specialists in regional hospitals or the HNOC. The one patient with tube feeding received the tube through another specialisation within the HNOC.

Figure 1 presents the participant flow during HNOC and GPs' care. In total, 24 patients died before the study was extended to general practice. The mean overall survival was 65% in one and a half years (range 0.9–2.0 years, SD 0.3). Of the 44 patients remaining, eight declined participation, four were untraceable and six participated in the medical record analysis, but not in the weight monitoring. Finally, in total 26 participants were monitored. One participant dropped out during treatment because of another malignancy in her lungs. She was at risk for an impaired nutritional status (7% weight loss in three months). Before referral, 45 participants' medical records could be analysed; of this number, 26 were available following HNOC care.

Weight monitoring

Due to participants' personal and follow-up circumstances we were able to collect 53 of the 104 weight measurements. Among the 26 participants, 10 suffered from hypertension or other cardiovascular risk factors or diseases, four from myocardial infarction, five from alcohol abuse or related (chronic) diseases, five from digestive disorders, two from diabetes, two from gout, two from psychiatric disorders, two from another kind of cancer and one from hepatitis.

Table 2 displays the percentages of weight change after HNOC care. Two participants lost between five and 10% of their previous weight in three months; one between the sixth and the ninth month, the other between the ninth and

Table 2. Percentages of weight change within follow-up intervals until one year after HNOC care

Variable	Follow-up interval (months)			
	0–3	3–6	6–9	9–12
n	4	4	9	14
Mean % weight change (SD)	2.3 (3.8)	0.0 (2.4)	1.8 (3.9)	0.3 (2.7)
Maximum % weight loss	3.2	2.5	7.0*	6.7*
Maximum % weight increase	4.8	3.2	5.0	4.5

* 'At risk' for an impaired nutritional status (n=1).
SD=standard deviation

the twelfth month of follow-up. The first suffered from lung cancer (BMI 13.4 kg/m^2) and the latter had an infection (BMI 23.6 kg/m^2). None of the participants lost 10% or more of their previous weight in three or six months. At the final measurement, the mean BMI was 23.5 kg/m^2 (n=25, SD 4.6, range 16.8–37.0 kg/m^2) and three participants (12%) had a BMI <18.5 kg/m^2. In general, participants gained weight during follow-up intervals, ranging from a stable weight up to 2% weight increase.

Nutritional information

The GP referred 35 of the 68 (51%) participants. For 24 of them referral letters were available, in which two (8%) GPs documented weight loss or the BMI and four (17%) nutrition-related complaints. In 11 (46%) cases a (pre-) malignancy was suspected.

Table 3 presents the GPs' documentation of weight loss or the BMI, nutrition-related complaints and interventions in medical records.

Before referral, 20% of the GPs reported weight loss or the BMI versus 16% after HNOC care. For nutrition-related complaints and intervention this was 13% versus 19% and 7% versus 19% respectively. There was no substantial difference observed in documentation of this information in medical records, before referral versus after HNOC care. Excluding documentation related to co-morbidity altered the results for nutrition-related complaints and interventions; these were more frequently documented after HNOC care (p=0.004).

Discussion

Patients remained vulnerable to an impaired nutritional status after specialists' care. In the minority of the patients, GPs documented weight loss or the BMI in referral letters and medical records before and after HNOC care. Although nutrition-related complaints and interventions due to head and neck cancer were documented more after HNOC care, this was not the case for the assessment of patients' nutritional status by weight loss or the BMI.

This is the first in-depth analysis of GPs' documentation concerning the nutritional status. Although this study concerns Dutch GPs, literature supports the need for nutritional attention in primary care in other Western countries.[11–13]

This study is limited insofar as the only parameters used to measure an impaired nutritional status were weight loss and the BMI. Weight loss could have been masked by fluid retention due

Table 3. General practitioners' documentation of the nutritional status, nutrition-related complaints and interventions in medical records

Variable	Before referral (n (%))			After HNOC care (n (%))		
	Yes		No	Yes		No
	History	*Measured*		*History*	*Measured*	
Weight loss or BMI	4 (9)	5 (11)*	36 (80)	2 (8)	2 (8)	22 (84)
Nutrition-related complaints**	6 (13)§		39 (87)	5 (19)†		21 (81)
Nutritional intervention**	3 (7)‡		42 (93)	5 (19)‖		21 (81)

‡,*,§ Including cases due to comorbidity (n=1, 2, 4, respectively)
† Including cases with tube feeding (n=2)
‖ Guidance by hospital dietician during treatment for lung cancer (n=1)
** p<0.05 after exclusion of documentation related to comorbidity

to comorbidity. No questionnaires or laboratory measurements have been performed to trace the actual occurrence of nutritional deficiency or other cachexia-related changes, such as its inflammatory activity leading to catabolism of body cell mass.[14] The difficulty is that no uniform parameter exists to qualify the nutritional status. Another point is the limited number of participants, due to the rarity and poor survival rates of head and neck cancer. The mean overall survival in our study was representative; in the literature two-year survival ranges from 50 to 65% for resectable[15,16] and 23 to 26% for inoperable tumours.[17,18] The three-monthly weight measurements might have caused fewer weight measurements on the GPs' own initiative in usual care.

Our study has implications for daily practice. Comorbidity can both cause a diminished nutritional status and result from it. For example, an infection can induce fever, anorexia and, as a consequence, weight loss, or the infection can be the result of an impaired immune function due to a deficient nutritional intake.[19] Optimising patient's nutritional status, next to treating its causes or consequences, can prevent a vicious circle of negative occurrences. Therefore, mentioning swallowing or food passage difficulties and body weight or weight change in referral letters is important for early treatment of cachexia in hospitals. Since the GPs might have pre-morbid weight documentation, they can transmit valuable information to specialists. Specialists, in turn, should report nutritional information back to guarantee continuity of care.

In future research, more detailed nutritional information should be gathered by questionnaires, the occurrence of muscle mass depletion over time or even laboratory values in primary care patient groups at risk. Qualitative research in GPs on the awareness of cachexia and related thoughts could shed light on the current poor documentation.

In conclusion, we call for nutritional management in general practice by urging practitioners to assess patients' nutritional status in high risk groups throughout the disease course and intervene if necessary. Transferring related information in case of referral promotes continuity of care.

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COMPETING INTERESTS
None declared.