SHORT REPORT

Under-identification of cancer outpatients at risk of malnutrition: are we making the most of anthropometric data?

Authors

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Abstract

In outpatient settings, patients are often referred to dietitians only after they have developed malnutrition and/or cachexia. This leads to increased difficulties in providing nutritional care, and to poorer patient outcomes. The audit described herein aimed to assess the frequency and completeness of patient record documentation of anthropometric measurements in a Day Treatment Unit (DTU) in a single cancer centre in the UK. The underlying goal was to improve the monitoring of nutritional risk and ensure documentation is sufficient to indicate weight loss and hence allow early referrals for nutrition support. The results show that for over 80% of patients it was not possible to identify a weight trend although they were attending the hospital for their scheduled appointments. The audit findings highlight the need to implement a malnutrition screening routine in DTU and the importance of ensuring patient records contain updated and accurate anthropometric measurements in order to facilitate communication between staff, and to enable the provision of early nutritional support when needed.

Key words: audit, anthropometric measures, malnutrition, nutritional screening, cancer

Introduction

Malnutrition is a deficiency or imbalance of energy or nutrients, resulting in measurable adverse effects on body composition, function and clinical outcomes[1]. Malnutrition is a prevalent, severe and costly problem among cancer patients[2]. Cancer treatments, such as surgery, radiotherapy and chemotherapy can be hindered or precluded by the development of malnutrition which, in turn, can lead to suboptimal patient care and negative outcomes[3]. Significant weight loss or body composition alterations which are characteristic of malnutrition and cachexia can also affect quality of life, mobility and affect treatment[4]. Therefore, in oncology settings, patients' anthropometrics must be recorded as early as possible[5].

Anthropometric measurements are used in healthcare to assess the size and proportions of the human body. In fact, clinical settings' compliance with current NICE and ESPEN, BAPEN guidelines [6] [7,8] on anthropometric data recording is the foundation of many further important clinical interventions[8,9]. Although more sophisticated technologies are being developed to assess body composition, weight and height remain the easiest, quickest and cheapest method for most patients. Where these are not measurable (i.e. wheelchair users), limb length or other measures can provide a substitute. Weight and height can be combined to derive other measures such as body mass index (BMI) or used with other information including sex, age or pathology to estimate energy and nutrients requirements[10]. Anthropometrics and changes over time are also commonly used to predict and assess the risks associated with the disease and to make prognoses[11]. For instance, in oncology they can be used to determine fitness for different treatments or surgery, and to calculate medicine dosages[12]. This audit aimed to assess the completeness of patient records documentation of anthropometric measurements in a single Day Treatment Unit.

Methods

Records of anthropometric data (weight, height, BMI) were checked for 430 patients attending the DTU during 3 weeks in June 2020, representing 60% of all patients receiving treatment during this

timeframe. Patients were receiving different treatments (chemotherapy, immunotherapy, etc) and had different cancer diagnoses, and were randomly selected within an alphabetised filing system. The digital records (not paper-based) were assessed for whether height was documented (at any time) and if weight had been documented on the day of their visit to the DTU. Measurement on the day they attended the DTU was compared against the weight of their previous appointments in order to identify weight changes overtime (weight loss or gain). Also frequency of referrals to dietitians were noted. The data recording was measured against the NICE standards[6] which indicates that 100% of weight measures should have been recorded. The audit was registered online in the Oxford University NHS Trust Register of clinical Audits (Ulysses). No ethical approval was required for the audit.

Results

48% (n=207) of the patients had their weight recorded on online medical records the day they attended the DTU. The remainder did not have their weight recorded. 90% of patients (n=387) had a height measurement recorded, however 19% (81) of the heights documented were recorded with differences of more than 5 cm over time. 3% (n=12) of patients had a correctly calculated BMI recorded. 97% patients (419) had a BMI recorded which was not consistent with their current weight or just not recorded.

60% (n=236) of patients had no weight documented during the hospital appointment immediately preceding their treatment appointment in DTU. Because of these missing data, it was not possible to identify a weight trend over time for 81% (n=349) of patients, despite their attendance at hospital visits. For the remaining 19% patients (n=82), a weight trend was calculated which showed that 34% (n=28) patients were actively losing weight.

The audit also showed that 34% patients of these (n=27) were meeting the criteria for malnutrition yet were not referred to the dietetic service. The criteria used were 5% weight loss in the last month or 10% weight loss in the last 6 months.

Discussion

In this audit, 1/3 of outpatients with a cancer diagnosis who were screened for weight changes were identified to be losing weight. Absence of data recording, particularly between hospital visits, and inconsistencies of the recorded data between visits were also evident with fewer than 1 in 5 patients regularly monitored for weight changes and approximately 1 on 3 having their height misrecorded across hospital visits. The results of this audit are similar to those published elsewhere[13,14].

The reasons behind this lack of documentation may be that appointments took place during the COVID-19 pandemic, during which staff were under increased pressure in their role. Staff duties increased including using protective equipment, extra monitoring for patients and ensuring appropriate distancing was happening at all times. This could have distracted them or taken time from weight measurement and documentation. Additionally, understaffing as a result of Covid absences or lack of staff training may also have affected the documentation rates. There may be a cultural component for which nutrition is seen as secondary in the care of cancer patients, with health care professionals considering medication and disease treatment as primary focus[15,16]. Despite the lack of documentation, 62 patients in our sample were correctly referred to dietitians, which witnesses the expertise of staff and that nutrition support is happening.

In regard to height measurements, protocols indicate need to measure this before the start of the treatment, however inconsistencies in recorded height may be due to patients self-reporting their height rather than staff measuring this. This could be done by staff to save time or because of lack of equipment.

Data that would emerge from a reliable and regularly compiled database of only the most basic anthropometric measurements could have great utility for several health care staff, including dietitians, oncologists, and pharmacists[12,17]. It would allow drug dosage to be calibrated correctly, it would be an indicator for nurses and oncologists for treatment tolerance and side effects, and it would allow patients to monitor their anthropometric status before surgery. It would also allow for an easier and earlier referral from healthcare professionals for nutrition support[18].

If data from this audit are projected to the entire cancer population attending the DTU, it is predicted that up to 1/3 of all patients may be losing weight, this would mean around 240 patients a month in this single centre. Previous studies in the UK suggest that missed referrals are a nation-wide issue[2,19–21] which, if projected, could involve tens of thousands of patients. Increased efforts towards regular monitoring of weight in cancer outpatients and the subsequent early detection of malnutrition should become a priority. Having patients attending a clinical setting such as hospitals is an opportunity for them to be fully monitored and referred to the appropriate service as early as possible. If used correctly, anthropometric data recording could be a simple but invaluable resource for cancer settings as well as other clinical settings which have a high prevalence of malnutrition, such as dialysis centres[22] and hepatology clinics[23].

In conclusion, weight and height are simple, low-cost, and non-invasive measures. Nevertheless, as with any human measurement, they are subject to error, bias and inter- and intra-observer errors[24–26]. In the era of e-health and development of artificial intelligence capable of predicting pathologies and prognosis by working on personal health data[27,28], NHS staff cannot afford to overlook the documentation of patients' weight and height using electronic systems. With the current technology and automatization, digital systems used in the NHS could set to remind the assessor to record anthropometric data as well as to automatically calculate BMI, monitor weight loss, and potentially generate referrals. These simple additions to IT systems could reduce human error, avoid misleading records and reduce staff workload[29]. It could also be used more effectively for research and be linked with patients' prognosis and outcomes and improve communication across the healthcare team[17,30].

Having complete and accurate data would also allow flowcharts or protocols for early nutritional interventions. Referrals would then become proactive rather than reactive and the onus on single members of staff is reduced. The current approach would therefore largely benefit from becoming more systematic and effective.

This audit confirms the potential harm of not measuring and maintaining records of anthropometric data for patients with a cancer diagnosis in an outpatient environment. The findings suggest the measurement and recording of anthropometric data require further attention. While calculations such as BMI or weight loss percentage can be time consuming for staff, they are incredibly easy for electronic systems. Future work should examine whether the combination of increased healthcare professionals' awareness of malnutrition issues and the development of IT tools to record anthropometric data and locate inconsistencies or omissions could improve clinical practice and patient care and quality of life.

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