

Taste and Smell Changes and Quality of Life among Ambulatory Cancer Patients Receiving Systemic Treatment.

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Introduction

Taste and smell alterations (TSAs) are common side-effects of anti-cancer treatment and can negatively affect patients' food choices, food intake, nutritional status and quality of life (QoL). Poor oral intake is a risk factor for cancer-related weight loss, particularly muscle wasting, which has been shown to predict tolerance to chemotherapy, quality of life and survival¹. Evaluation of the prevalence of TSAs, as well as their predictive factors can help identify patients at increased nutritional risk and lead to better symptom management and QoL.

Aims:

1. To assess the prevalence of taste and smell alterations among a cohort of Irish patients with cancer, who were receiving systemic anti-cancer treatment
2. To identify any demographic, clinical or therapeutic factors that may be associated with TSAs.

Methods

- n=1,015 patients who were undergoing chemotherapy at two University Teaching Hospitals in Cork, Ireland, were enrolled in the SARCONC study between 2012-2017. This large, prospective cohort study investigated the nutritional status, body composition (by CT), QoL (EORTC-QLQ-30 validated questionnaire) and treatment outcomes of patients receiving systemic anti-cancer treatment^{1,2}.
- The current study is a secondary analysis of the patients recruited from 2015-2017, after which additional survey questions on TSAs were introduced following ethical approval.
- Quantitative analyses were completed using SPSS v28 and included chi-squared tests, Independent Samples T-tests, and logistic regression models. Multivariate analyses compared those who did experience taste changes with those who did not. Significance was determined at $p < 0.05$.
- Qualitative responses underwent qualitative content analysis using NVivo v15.

Results

Of a total cohort of 1,015 patients, TSA data was available for 292 patients (55.1% female, median age 61 years).

All were receiving systemic anti-cancer treatment. Metastatic disease was present in 52.1% and 94.9% were either on their first or second line of treatment. The majority of patients had a good performance status, with 88.6% of the cohort having an ECOG score of 0 or 1.

Despite the high prevalence of overweight and obesity (63.3%) as determined by Body Mass Index, CT analysis of body composition revealed that 35.4% had low muscle mass (sarcopenia) and 26.7% met the diagnostic criteria for cancer cachexia.

In total, 50.3% reported a change in sense of taste and 20.8% reported a change in smell (see Fig 1). Females experienced significantly more taste and smell changes than males (63.3% Vs 36.7%, $p=0.007$, 75% vs 25%, $p=0.001$, respectively).



Fig 1: Prevalence of Taste and Smell changes

'Metallic' (34.2%) and 'bland' (26.0%) were the most commonly described changes in food taste. Similarly, 'stronger' (29.8%) and 'sensitive' (23.4%) were the most frequently cited explanations provided for variations in how food smells.

Cancer sites with the highest frequency of TSAs were breast, lung and gastro-intestinal cancers (Fig 2).

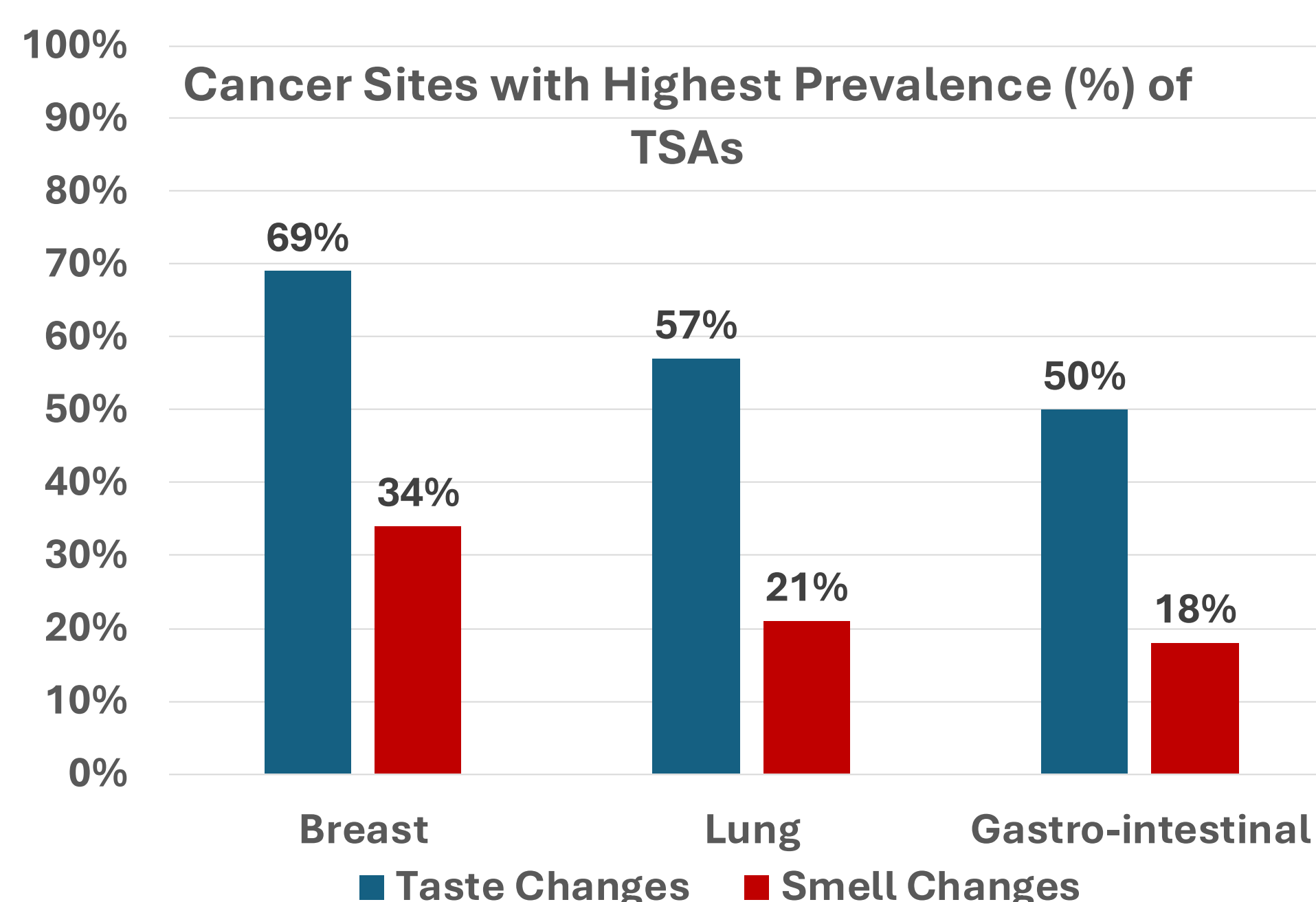


Fig 2: Cancer Sites with the highest frequency of TSAs

TSAs were significantly more likely to present within symptom clusters, including anorexia, constipation, nausea, dyspnoea and fatigue (See Fig 3).

The prevalence of taste changes according to drug groups were:

- 63% for taxanes
- 57% for antimetabolites
- 54% for alkylating agents
- 43% for anthracyclines
- 37% for monoclonal antibodies

Of those with taste changes, 44.7% reported experiencing weight loss in the 6 months preceding the survey, of which 23.9% had lost $\geq 5\%$ body weight (cancer cachexia). The majority of patients (63.2%) who experienced taste changes did not enjoy taking oral nutritional supplements, when they were prescribed to them.

On Multivariate analysis (controlling for age, sex and cancer type), experiencing a taste change was independently associated with:

- Lower global QoL score (OR: 0.979 [95%CI: 0.967-0.992], $p=0.001$)
- Paclitaxel (OR:2.376 [95%CI: 1.168-4.834], $p=0.017$).

Smell changes were also independently associated with lower global QoL score on Multivariate analysis (controlled for age, sex and alcohol use) (OR: 0.976 [95% CI: 0.962-0.991], $p=0.002$)



Fig 3: Other symptoms associated with TSAs

Conclusions

- This study revealed that TSAs are very common in patients receiving systemic anti-cancer treatment and are associated with specific demographic, clinical and treatment-related factors.
- Taxane-based chemotherapy, and in particular Paclitaxel, are associated with TSAs, which can impact compliance with oral nutritional supplements.
- Taste and smell changes are independently associated with lower global quality of life scores and are more likely to present within symptom clusters.
- Increasing awareness of TSAs in patients on chemotherapy allows for better symptom and nutritional management, in turn maximising oral intake and preserving nutritional status during treatment.

References

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