Editorial

Lung cancer screening in patients with head and neck cancer: an opportunity frequently missed

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Soto and co-workers recently published their important study in the *Journal of Thoracic Disease*, which describes lung cancer screening eligibility and uptake in a cohort of individuals with head and neck cancer, from an oncology clinic in North America (1).

The pertinent context to this study is underpinned by two major trials, the national lung screening trial (NLST) originally published in 2011 (2) and the Nederlands Leuvens Screening Onderzoek (NELSON) study in 2020 (3). The NLST investigated over 50,000 individuals deemed at high risk of developing lung cancer and demonstrated a 20% reduction in lung cancer related death over 7 years, in patients who received screening with computed tomography (CT) chest compared with chest radiograph. The NELSON study primarily reported on male patients randomised to either CT chest screening or no screening and also demonstrated improved lung cancer specific mortality.

A number of complementary smaller trials had been carried out, a meta-analysis of these studies in 2021 reported a 3% reduction in all-cause mortality in patients screened with CT (4-6). In support of this, a large-scale prospective study including over 1 million participants demonstrated a reduction in all-cause mortality of 32% in high-risk patients who received a single CT thorax (7). Collectively the data overwhelming suggests that there are a group of patients who would be benefit from screening with CT chest for lung malignancy.

The United States preventive services task force (USPSTF), on the basis of the described evidence, currently suggests that patients with a smoking history of 20 pack years aged between 50 and 80 years old should undergo yearly low dose CT chest for lung cancer screening (8). Prior to the publication of the NELSON study which used similar inclusion criteria, the USPSTF recommendation had been for 55- to 80-year-old with at least a 30-pack-year history, reflecting the inclusion criteria of the NLST. Both guidelines have been considered by Soto and colleagues. Of the 184 patients with head and neck cancer considered for this study 8 were identified as eligible for lung cancer screening under the current USPSTF guidelines and 7 under the previous guidelines. Surprisingly only a further single patient was already engaged in the screening programme at the time of interview.

These results alone point to an unmet need, a high-risk group of patients eligible for inclusion in a screening programme shown to impact mortality, are not currently being included. The results from Soto *et al.* (1) indicate that 5% of patients with head and neck cancer may be eligible for lung cancer screening. This may well be an

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underestimate of the size of this problem given 7 of the 24 patients identified as potentially eligible for screening did not participate in interviews. Additionally, 24 of the 87 patients who were current or previous smokers did not have documented pack years, some of these patients may also have been eligible for screening. The lack of recording of smoking history could suggest health care professionals are at risk of overlooking the importance of pack year history, which represents the central determinant for eligibility to the US lung cancer screening program at present.

It is important to critique whether the evidence for lung cancer screening is applicable to patients with head and neck cancer. The largest studies, NELSON and NLST both stipulated that patients should not have undergone a CT chest in the past year and 18 months respectively, which is likely to have precluded a number of patients with a recent diagnosis of head and neck cancer. The NELSON study also specifically excluded patients with a recent or current diagnosis of lung, breast, melanoma or renal cancer, but not specifically head and neck cancer. The lack of inclusion of patients with cancer in these studies represents a gap in current knowledge., however other small studies have included patients with cancer.

Conversely the UK lung cancer screening study published in 2021 included 20% of participants with a diagnosis of solid malignancy (4). Although not statistically significant a trend towards reduced lung cancer specific mortality was also reported in this study. The patient selection used the Liverpool Lung Project-v2 (LLPv2) risk scoring system which attributes higher risk to those patients with a diagnosis of malignancy, based on the work of Cassidy *et al.* in 2008 (9).

Specifically, regarding head and neck cancer, cohort studies have indicated that a proportion of patients with head and neck cancer will proceed to develop lung cancer during follow up (10,11). It has been reported from multiple sources that patients with head and neck cancer have a high risk of developing secondary lung cancer. Piersiala *et al.* in 2020 published an analysis of patients with head and neck cancer who met the USPSTF criteria for annual lung cancer screening indicating a secondary lung cancer rate of 6%, compared to 4% in the NLST for example (12).

Returning to the work of Soto and colleagues, it was of interest that more than 50% of patients had no awareness of the screening program, whilst only 4 of 17 demonstrated an accurate understanding of what screening entails. In spite of this a significant majority of patients would be interested in screening if eligible. A clear theme from the responses patients gave as to why they would or would not be interested in screening was they wished for more knowledge, which is expected.

Whether the head and neck cancer clinic is the right place to intervene, is another important question and Soto and co-workers provide some indirect but key evidence to indicate that it could be. As noted, the major determining factor as to whether patients should be screened for lung. 3% of participants in the work of Soto and colleagues were current smokers, representing 6% of those who had been smokers at any point in the past. In short, at the time of entering the oncology clinic the overwhelming majority of patients stopped smoking and therefore are unlikely to accumulate more pack years. This may then represent an appropriate time to make an assessment for lung cancer screening eligibility.

There is mounting evidence to demonstrate the efficacy of reducing lung cancer specific and all-cause mortality through lung cancer screening. Despite this high-risk patients are not being screened. Health care professionals have a duty to point patients towards better health care, given the emerging evidence for the efficacy of lung cancer screening programmes, eligibility of patients for such programmes should be an important consideration. In the case of those managing patients with head and neck cancer, at present lung cancer screening may be an opportunity frequently missed.

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