

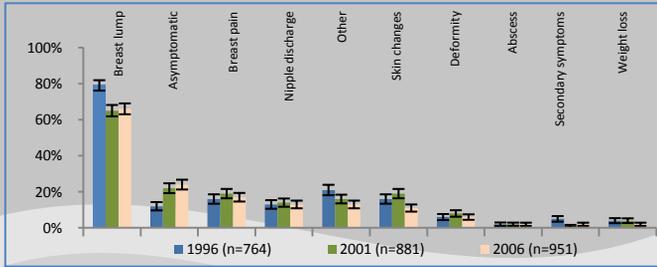
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Efforts to increase cancer survival are increasingly focused on earlier clinical detection. There is a need to enhance understanding of the relationship between symptoms and their duration with patient outcomes, and how earlier presentation and referral have the potential to improve outcomes. The objectives of this study were to document prevalence of symptoms in cancer patients over time, reported delays in presentation and to investigate the relationship of symptoms with stage.

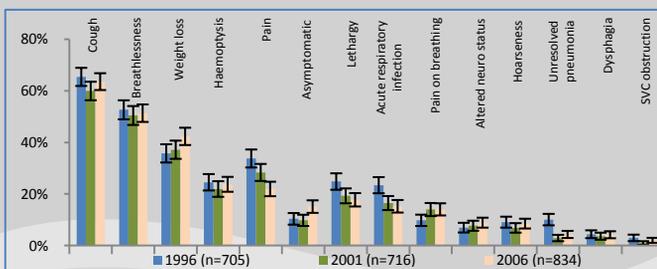
A retrospective secondary care note review for all patients diagnosed with colorectal, lung and breast cancer in 1996, 2001 and 2006 in N. Ireland including 8,151 patients was carried out by trained Tumour Verification Officers. Symptoms and their duration were documented over time. Using logistic regression, the relationship between disease symptoms, delays and outcomes was investigated accounting for covariates including age, co-morbidities and tumour grade.

Symptom Prevalence

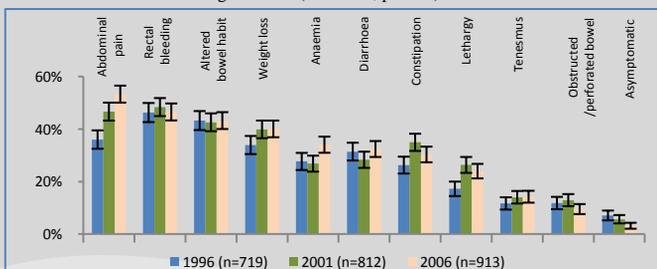
- The most commonly reported breast cancer symptom was breast lump despite a significant drop from 1996. Fewer than 10% reported secondary symptoms or weight loss. Asymptomatic patients increased ($p < 0.05$) largely due to introduction of breast screening.
- After adjusting for screening, and other factors, most symptoms were associated with lower likelihood of early stage disease including nipple discharge (OR=0.68, $p < 0.01$), abscess (OR=0.21, $p < 0.01$), deformity (OR=0.55, $p < 0.01$), skin change (OR=0.57, $p < 0.01$), secondary symptoms (OR=0.07, $p < 0.01$), and weight loss (OR=0.48, $p < 0.01$).



- Symptoms with low predictive power such as coughing and breathlessness were the most common lung cancer symptoms.
- Weight loss is also a common symptom, (42% in 2006) reflecting later stage disease, however, asymptomatic/incidental presentation increased significantly from 11% in 1996 to 15% in 2006 ($p < 0.05$).
- After adjustment for tumour type, smoking and other factors, asymptomatic / incidental patients had a higher chance of being diagnosed at stage I or II (OR: 1.75, $p < 0.01$). Pain (OR: 0.60), weight loss (OR: 0.60) and altered neural state (OR: 0.42) were associated with lower likelihood of early diagnosis ($P < 0.01$).

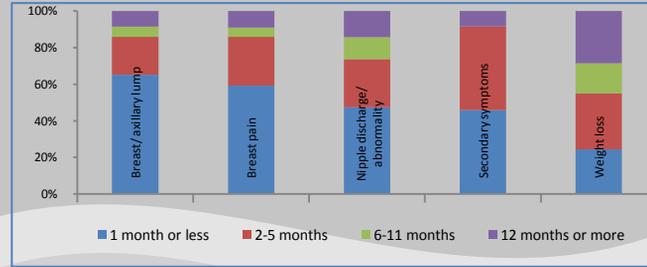


- Abdominal pain was the most frequently recorded symptom of colorectal cancer patients in 2006 (53%) followed by rectal bleeding at 47%. 'Low risk but not no risk' symptoms such as diarrhoea and constipation were also frequently reported.
- After adjusting for age and other symptoms presence of rectal bleeding increased odds of earlier stage disease (OR: 1.8, $p = 0.05$) in colon cancer. Similarly in rectal cancer, bleeding was associated with earlier stage disease (OR: 3.6, $p = 0.05$). Altered bowel habit was associated with later stage disease (OR: 0.12, $p < 0.01$).

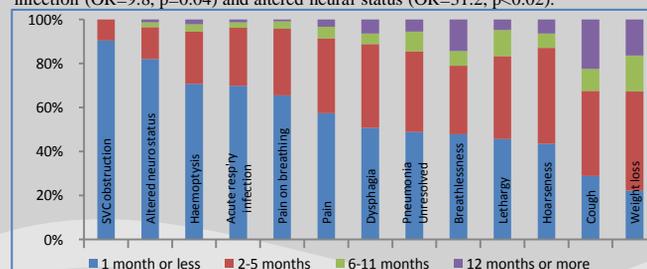


Symptom Duration

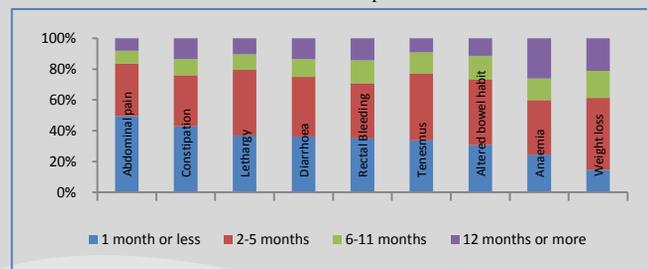
- Reported duration of breast lump and breast pain was shorter than secondary symptoms.
- The reported symptom duration for breast lump has significantly reduced from 1996 to 2006 ($p < 0.05$).
- Breast lump (OR: 0.28, $p < 0.01$) and nipple discharge (OR: 0.36, $p < 0.05$) exceeding 12 months was associated with lower odds of early stage disease



- Common symptoms with low predictive power tended toward longer duration while acute, specific symptoms were associated with shorter duration.
- Increasingly haemoptysis was reported within 1 month (77% in 2006 compared to 57% in 1996) while the presentation of coughs were increasingly delayed for more than 12 months (22% in 2006 compared to 11% in 1996).
- A counterintuitive relationship was found between duration and stage with patients reporting symptoms longer than 12 months associated with earlier disease. This was true for the following symptoms: breathlessness (OR=2.8, $p < 0.01$), pain (OR=4.4, $p < 0.01$), lethargy (OR=4.1, $p = 0.02$), cough (OR=2.3, $p < 0.01$), acute respiratory infection (OR=9.8, $p = 0.04$) and altered neural status (OR=31.2, $p < 0.02$).



- Abdominal pain was associated with shortest duration but only 50% report duration of <1 month. Significant delays were also recorded for rectal bleeding with 29% of these reporting symptoms for >6 months. There is little evidence of improving symptom duration from 1996.
- The relationship between symptom duration and stage were unclear even after controlling for tumour grade. Confounders such as severity of symptoms may need to be accounted for to understand the relationship.



This study presents symptom prevalence and duration on a population basis. Although there is evidence of earlier presentation in breast cancer since 1996, this cannot be said of lung or colorectal cancer. The analysis of symptoms and outcomes is complex, symptom severity may confound interpretation as do multiple patient symptoms. In addition, statistical power is weakened in the analysis of defined symptoms and duration. While this analysis links earlier stage disease with earlier presentation with a breast lump, this study, like many others has observed a counterintuitive relationships between symptom duration and disease stage in lung and colorectal cancer. This may be explained by symptom severity and faster progressing tumours in earlier presenting patients. Confounders may also exist in the recording of symptom duration. Further research is required to better understand the relationship.

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Breast Cancer

Lung Cancer

Colorectal Cancer

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