The general practice perspective on early diagnosis of blood cancers

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London Cancer Workshop
25th February 2015
General practice perspective

- Blood cancers are rare diagnoses in primary care & are ‘harder to suspect’ cancers
- Estimated that an average GP (about ~10K patient contacts/year) will see
  - 1 case of NHL every 3-4 years
  - 1 case of myeloma every 8 years
- No clear symptom signature (unlike e.g. breast, colorectal, melanoma)
- Prolonged diagnostic intervals (especially in harder to suspect cancers) primarily because of limitations of scientific knowledge and in the organisation and delivery of healthcare (Lyratzopoulos et al BMJ Dec 2014)
Variation in number of general practitioner consultations before hospital referral for cancer: findings from the 2010 National Cancer Patient Experience Survey in England

Georgios Lyratopoulos, Richard D Neal, Josephine M Barriere, Gregory P Rubin, Gary A Abel

Summary

Background Information from patient surveys can help to identify patient groups and cancers with the greatest potential for improvement in the experience and timeliness of cancer diagnosis. We aimed to examine variation in the number of pre-referral consultations with a general practitioner between patients with different cancers and sociodemographic characteristics.

Figure 1: Odds ratios and 95% CIs for three or more general practitioner consultations before hospital referral, by cancer type
Positive predictive value of symptoms for blood cancers - 1

Myeloma
‘Individual symptoms of myeloma in primary care are generally low risk - probably explaining diagnostic delays. Once simple primary care blood tests are taken, risk estimates change. Hypercalcaemia and leucopenia are particularly important abnormalities, and coupled with symptoms, strongly suggest myeloma.... These results should aid doctors’ clinical decision making in selecting relevant patients for primary care testing, thereby reducing diagnostic delay.’
Positive predictive value of symptoms for blood cancers - 2

Hodgkin Lymphoma (adult)

- ‘Lymphadenopathy per se has a PPV of 5.6% for HL in patients >60..... and warrants urgent investigation’

Shephard et al, Br J Gen Pract in press

Non-Hodgkin Lymphoma (adult)

- ‘Lymphadenopathy per se has a PPV of 13% for HL in patients >60..... and warrants urgent investigation, potentially sooner than 6 weeks post initial presentation – where the GP is particularly concerned’

Shephard et al, Br J Gen Pract in press
Positive predictive value of symptoms for blood cancers - 3

Leukaemia

- No primary care studies to date

Blood cancers in children

- No specific primary care blood cancer studies

- Individual alert symptoms and consultation patterns have very low PPVs for children (10K children with alert symptoms leads to 6 cancer diagnoses) - Dommett et al, Br J Cancer, 2012
‘We believe that it is reasonable to assume that efforts to expedite the diagnosis of symptomatic cancer are likely to have benefits for patients in terms of improved survival, earlier stage diagnosis and improved quality of life, although these benefits vary between cancers.’

‘For lymphoma, three studies reported no association or a negative association. For leukaemia, the three studies reported no associations. There were only two studies in myeloma, although both of these reported positive outcomes.’

Neal et al Br J Cancer in press
## Does timelier diagnosis make a difference? – 2

<table>
<thead>
<tr>
<th>Condition</th>
<th>Positive association</th>
<th>No association</th>
<th>Negative association</th>
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</thead>
<tbody>
<tr>
<td><strong>Leukaemia</strong></td>
<td></td>
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<tr>
<td>Positive association</td>
<td>None reported</td>
<td>Survival (Friese 2011 (chronic lymphocytic))</td>
<td>None reported</td>
</tr>
<tr>
<td>Symptom onset to diagnosis (Prabhu 1986 (chronic myeloid))</td>
<td>Treatment interval (Bertoli 2013 (acute myeloid))</td>
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<tr>
<td><strong>Lymphoma</strong></td>
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<tr>
<td>Positive association</td>
<td>None reported</td>
<td>Survival (Jacobi 2008 (follicular); Maguire 1994 (unspecified); Norum 1995 (Hodgkin’s))</td>
<td>None reported</td>
</tr>
<tr>
<td>Symptom onset to diagnosis (Foulc 2003; Kim 1995 (both Sezary syndrome))</td>
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<tr>
<td><strong>Myeloma</strong></td>
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<tr>
<td>Positive association</td>
<td>Survival (Kariyawasan 2007)</td>
<td>None reported</td>
<td>None reported</td>
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<tr>
<td>Symptom onset to diagnosis and complications at diagnosis (Friese 2009; Kariyawasan 2007)</td>
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Interventions to promote timelier diagnosis

- Interventions aimed at increasing public awareness and addressing help-seeking
  - Some evidence from other cancers (commoner, and with a clearer symptoms signature) of short to medium term effectiveness

- Interventions aimed at primary care to lower threshold for investigation / referral

- Development and evaluation of technologies to clinical decision making

- System change to hasten diagnostic pathways