Second malignancies in cancer survivors

As more patients with cancer survive, it has become apparent that one of the most life-threatening sequelae of cancer and its treatment is the diagnosis of a second cancer (J Clin Oncol 2012;30:3734). These second cancers now represent 1 in 6 reported cancers in the USA.

These second cancers occur for several reasons:
- Shared environmental aetiological factors, e.g. smoking and excess alcohol intake.
- Genetic susceptibility (this is covered in the Cancer genetics chapter).
- Late effects of cancer therapy, e.g. whole body irradiation.

Second malignancies due to shared aetiological factors

The three main culprits here are tobacco, alcohol and obesity.

Smoking
- There is a strong link between lung cancers and cancers of the upper aero-digestive tract (mouth, pharynx, larynx and upper oesophagus).
- Lung cancer survivors are also at increased risk of lip, bladder and second lung cancers.
- There is a synergistic effect between tobacco and alcohol consumption.
- Stopping smoking is beneficial at any point on the cancer journey.

Alcohol
- Excess alcohol consumption is related to cancers of the oral cavity, pharynx, larynx, oesophagus, colon, rectum, liver and breast.
- Encourage cancer survivors to maintain a healthy alcohol intake.

Obesity
- This is associated with post-menopausal breast cancer, ovarian, endometrial, colon, gallbladder, pancreatic, kidney and thyroid cancer.
- Help cancer survivors to achieve a healthy BMI.

Second malignancies due to cancer treatment

Below we discuss the associations between cancer treatment and subsequent risk of second malignancy. However, it is becoming increasingly apparent that some individuals are more genetically susceptible to these treatment-related risks and in the future more tailored treatments may be beneficial.

Chemotherapy-related second cancers
- Alkylating chemotherapy increases the risk of developing acute leukaemia within the first 10y after treatment.
- It has also been linked to an increased risk of solid tumours including lung, GI and bladder cancer and sarcomas.

Radiotherapy-related second cancers

These cancers have been studied in survivors of Hodgkin’s lymphoma, testicular, breast and prostate cancer.
- They have a long latency from the time of treatment – usually 5–10y.
- They tend to occur within or just at the edge of the treatment field.
- The risk appears to be dose-dependent.
- As radiotherapy becomes more sophisticated with lower doses and smaller fields, this risk may reduce.
What does this mean in practice?

- There are no specific risk assessment tools that take account of cancer survivors’ treatment, family history and lifestyle patterns and determine their ‘overall risk’ of second malignancies – more research is needed in this area.
- We can encourage cancer survivors to participate in national cancer screening programmes. Oncologists may recommend that patients who have had pelvic irradiation should have a colonoscopy 10y after their radiation treatment.
- Where a strong family history of cancer is present (see Cancer genetics chapter) referral for genetic counselling and consideration of additional screening is appropriate.
- In the future we may recommend aspirin for the secondary prevention of colon cancer in high risk individuals (see Cancer prevention chapter).

<table>
<thead>
<tr>
<th>Primary cancer</th>
<th>Historic radiation field</th>
<th>Second malignancies with confirmed radiation dose–response relationship</th>
<th>All second tumours where an increased risk has been reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hodgkin’s lymphoma</td>
<td>Total nodal irradiation (mantle/para-aortic and pelvic)</td>
<td>Breast, lung, stomach</td>
<td>Head and neck, oesophagus, pancreas, colon/rectum, kidney, thyroid, brain, soft tissue, bone, melanoma, female genital</td>
</tr>
<tr>
<td>Testicular cancer</td>
<td>Mediastinal, pelvic, para-aortic</td>
<td>Stomach</td>
<td>Lung, thyroid, oesophagus, stomach, pancreas, colon, kidney, bladder, soft tissue/bone</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>Tangential (to area of affected breast) with or without axillary supraclavicular</td>
<td>Contralateral breast</td>
<td>Lung, oesophagus, soft tissue</td>
</tr>
<tr>
<td>Cervical cancer</td>
<td>Pelvic</td>
<td>Rectum, bladder, all female genital sites</td>
<td>Kidneys</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>Pelvic/prostatic</td>
<td>None</td>
<td>Colon, rectum, bladder, soft tissue</td>
</tr>
</tbody>
</table>
## Second malignancies in cancer survivors

- Be aware that there is an increased risk of developing a second malignancy for cancer survivors.
- This relates to several factors including common aetiological causes, e.g. smoking/alcohol, genetic susceptibility and the late effects of treatment, usually seen 10 years after.
- Have a lower threshold for the investigation of new red flag symptoms in cancer survivors.
- Encourage cancer survivors to stop smoking, cut back on alcohol and maintain a healthy BMI – it is never too late.
- Encourage cancer survivors to participate in appropriate screening programmes.
- Where a strong family history is present, refer for genetic counselling and consideration of whether additional screening would be beneficial.
- As chemotherapy and radiotherapy treatments become more individualised and sophisticated, these risks may reduce.

## We need to know what treatments our cancer patients have had in order to fully appreciate their future care needs – look at a random selection of patients diagnosed with cancer 5+ years ago – how well is their diagnosis and treatment coded? Could you develop a template or practice protocol?
Our comprehensive one-day update courses for GPs, GP STs, and General Practice Nurses.

What’s not included?
Our courses contain NO theorists, NO gurus, NO sponsors, NO reps on the day!
Just real-life GPs who will be back at the coal face as soon as the course has finished.

All our courses are:

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The GP Update Course – our flagship course!

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The day is designed for all GPs and GP STs – not just those with a special interest!

The Cancer Update Course

Within the next 15 years the need for cancer care will double and you will look after as many cancer survivors as diabetics. Shared care follow up will become the norm, and secondary care will pass responsibility to us.

A key 2015 Lancet Oncology commission paper warned that: “GPs are inadequately trained and resourced to manage the growing demand for cancer care in high income countries”.

Education for GPs was one of their five key recommendations – we can help you get ahead of the curve! Established GPs and GP STs can use this course to bridge the gap in traditional GP cancer education which has focussed heavily on referral and end of life care missing out the whole journey in between.

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One day small group courses designed for GPs, GP STs and General Practice Nurses. The courses have a practical focus and lots of engaging exercises allowing delegates to rehearse the most effective consultation behaviours.

But don’t worry, there won’t be any role playing in front of everybody!

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Leeds Wed 17 May
Birmingham Fri 19 May
London Wed 7 June
Bristol Fri 9 June
London Fri 6 Oct
Manchester Fri 13 Oct
Glasgow Sat 4 Nov

The Medically Unexplained Symptoms Course

Manchester Thur 18 May
London Thur 19 Oct

The Effective Consultation Course

Manchester Wed 10 May
London Fri 12 May
Leeds Wed 4 Oct
London Fri 24 Nov

Prices

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All other courses: £225 or £210 for members of www.gpcpd.com

(GPCPD members, please log in and then click on the relevant button within the ‘Member information’ box on the right of the home screen to get your discount code)

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- The Cancer Update Course (location).............................................................   (date).........................
- Lead. Manage. Thrive! Course (location).............................................................   (date).........................
- The Telephone Consultation Course (location).............................................................   (date).........................
- The Effective Consultation Course (location).............................................................   (date).........................
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