Second primary cancer among head and neck cancer survivors

Jérémie Jégu\textsuperscript{1,2}, Florence Binder-Foucard\textsuperscript{1,2}, Michel Velten\textsuperscript{1,2,3}

\textsuperscript{1}Bas-Rhin Cancer Registry, Department of Epidemiology and Public Health, EA 3430, Faculty of Medicine, University of Strasbourg, Strasbourg, France

\textsuperscript{2}Department of Public Health, University Hospital of Strasbourg, Strasbourg, France

\textsuperscript{3}Department of Epidemiology and Biostatistics, Paul Strauss Comprehensive Cancer Center, Strasbourg, France

\textsuperscript{5ème} forum du Cancéropôle du Grand-Est, Strasbourg 2011
The number of people living with a cancer is increasing

- More and more cancer survivors face the risk of developing a new primary cancer
- Risk of new cancer in cancer survivors is superior to the risk in general population\(^1\)
- In Bas-Rhin, a previous analysis for all 1\(^{st}\) cancer sites showed that men with first head and neck cancer are strongly at risk to develop new cancers\(^2\)

Objective: To assess the incidence of second primary cancer among head and neck cancer survivors in Bas-Rhin, France
Methods

- Population: men with 1\textsuperscript{st} primary head and neck cancer (oral cavity, pharynx) diagnosed between 1975 and 2004 in Bas-Rhin
- 2\textsuperscript{nd} primary cancer: 1\textsuperscript{st} subsequent primary cancer > 2 months after 1\textsuperscript{st} cancer diag.
- Indirect standardization method\textsuperscript{1,3}

\textbf{Number of 1\textsuperscript{st} primary cancer in Bas-Rhin}

\textbf{Bas-Rhin population}

\textbf{1\textsuperscript{st} cancer incidence rate in general population}

\textbf{Number of Person-Years at Risk (PYR) in head and neck cancer survivors}

\textbf{Number Observed (O) of 2\textsuperscript{nd} primary cancer}

\textbf{Number Expected (E) of 2\textsuperscript{nd} primary cancer}

\textbf{Observed to expected ratio (O/E), Excess Absolute Risk (EAR), Cumulative Incidence (CI)}
Results

- Head and neck cancer survivors had a 5.4 relative risk of developing a new cancer compared to the general population (O/E=5.4, 95%CI 5.1-5.8)

- The Excess Absolute Risk was of 566 additional cancer cases per 10,000 PYR

- 18.6% of these patients developed a 2nd primary cancer by 10 years of follow-up
- By 2\textsuperscript{nd} primary cancer site:

<table>
<thead>
<tr>
<th>2\textsuperscript{nd} primary cancer site</th>
<th>Observed</th>
<th>Expected</th>
<th>O/E (95%CI)</th>
<th>EAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head and neck</td>
<td>378</td>
<td>20</td>
<td>18.9 (17.0-20.9)</td>
<td>209</td>
</tr>
<tr>
<td>Lung, bronchus</td>
<td>364</td>
<td>37</td>
<td>9.8 (8.9-10.9)</td>
<td>191</td>
</tr>
<tr>
<td>Esophagus</td>
<td>165</td>
<td>7</td>
<td>23.6 (20.1-27.5)</td>
<td>92</td>
</tr>
<tr>
<td>Prostate</td>
<td>46</td>
<td>43</td>
<td>1.1 (0.8-1.4)</td>
<td>2</td>
</tr>
<tr>
<td>Large Bowel</td>
<td>46</td>
<td>29</td>
<td>1.6 (1.2-2.1)</td>
<td>10</td>
</tr>
<tr>
<td>Liver</td>
<td>30</td>
<td>8</td>
<td>3.8 (2.5-5.4)</td>
<td>13</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>17</td>
<td>12</td>
<td>1.4 (0.8-2.3)</td>
<td>3</td>
</tr>
<tr>
<td>Kidney, other urinary tract</td>
<td>15</td>
<td>9</td>
<td>1.7 (0.9-2.8)</td>
<td>4</td>
</tr>
</tbody>
</table>
Discussion

- How to explain the excess risk of cancer in cancer survivors?[^4]

[^4]: This is a placeholder for the discussion text.
<table>
<thead>
<tr>
<th>2nd primary cancer site</th>
<th>O/E Bas-Rhin</th>
<th>O/E USA (5)</th>
<th>EAR Bas-Rhin</th>
<th>EAR USA (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head and neck</td>
<td>18.90</td>
<td>17.73</td>
<td>209</td>
<td>96</td>
</tr>
<tr>
<td>Lung, bronchus</td>
<td>9.84</td>
<td>3.79</td>
<td>191</td>
<td>92</td>
</tr>
<tr>
<td>Esophagus</td>
<td>23.57</td>
<td>13.9</td>
<td>92</td>
<td>33</td>
</tr>
</tbody>
</table>

- **Alcohol consumption**<sup>6</sup>

- **Tobacco consumption** (Smoking prevalence in men in 2006)<sup>7</sup>
  - France 36%
  - USA 25%

- **Late adverse effects of treatments?**
  5% of second cancers may be related to radiotherapy in head and neck cancer survivors in the USA<sup>8</sup>
Conclusions

- Head and neck cancer survivors are strikingly at high risk to develop new tobacco and alcohol related cancers in Bas-Rhin

- Prevention strategies should be strengthened
  - Promoting smoking cessation and moderate alcohol consumption in general population
  - Lifestyle change interventions among patients with a first head and neck cancer

- Better understanding of the excess risk of second cancer is required to help clinicians and patients
  - Choice of treatment
  - Prevention strategies
  - Clinical follow-up

- Extension of this analysis to other French cancer registries
  IReSP, INSERM, INCA funding: “Risque de cancer ultérieur chez les survivants d'un premier cancer en France (K2-France)”
Acknowledgments

Cancer registry staff

Julie BOUQUET
Eveline CHAUMONT
Sylvie COLLE
Cécile DUFOUR
Aurélie GRYCZKA
Evelyne HUGEL
Evelyne KEIME
Meheni KHELLAF
Ozlem KILCI
Fatima LAAMRANI
Catherine LEGLAYE
Andréi MELNIKOV
Brigitte PAULEN
Evelyne RAPP
Souhila SAHAOUI

Local partners
Private and public hospitals
Pathologists
General Practitioners

Institutional partners

Contact - jeremie.jegu@unistra.fr


