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Hyperlipidaemia reduces mortality in breast, prostate, lung and bowel cancer

Authors:
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On behalf: Algorithm for Comorbidities, Associations, Length of Stay and Mortality (ACALM) Research Unit

Topic(s):
Lipids

Citation:
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Introduction: Hyperlipidaemia is a well-established cardiovascular risk factor but the effect of hyperlipidaemia and treatment with cholesterol-lowering drugs on cancer remain equivocal. We aimed to investigate the impact of comorbid hyperlipidaemia on mortality amongst patients with the four most prevalent cancer types in the United Kingdom (Lung, Breast, Prostate and Bowel). We did this using a large database of patients admitted with comorbid hyperlipidaemia to hospitals in the UK between 2000-2013.

Methods: Anonymous information on patients with a primary diagnosis of lung, breast, prostate and bowel cancers were obtained from hospitals in the UK between 1st January 2000 and 31st March 2013. This data was analysed according to the ACALM (Algorithm for Comorbidities, Associations, Length of stay and Mortality) study protocol. ICD-10 and OPCS-4 codes were used to trace patients coded for cancer, patient demographics, prevalence of hyperlipidaemia and mortality data. The impact of hyperlipidaemia on mortality in cancer patients was analysed by cox regression adjusted for age, gender and ethnicity.

Results: 929552 patients were admitted during the study period. Of these 7997 had lung cancer, 5481 had breast cancer, 4629 had prostate cancer, and 4570 had bowel cancer. Comorbid diagnoses of hyperlipidaemia significantly reduced mortality amongst patients with all four cancer types studied. Cox regression analyses accounting for differences in age, gender and ethnicity showed that hyperlipidaemia was associated with a significantly reduced mortality rate in lung cancer (OR 0.78, 95% CI 0.70-0.87 ), breast cancer (OR 0.57, 95% CI 0.43-0.77), prostate cancer (OR 0.53 , 95% CI 0.50-0.79) and bowel cancer (OR 0.70, 95% CI 0.58-0.84).

Conclusion: We demonstrate for the first time that comorbid hyperlipidaemia has a highly protective effect on mortality amongst patients with the four most prevalent cancers in the UK. The underlying reasons are yet to be determined but treatment with statins may contribute. This potentially beneficial effect of lipid-lowering medications amongst cancer patients should be further investigated.

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Prevalence of Cancer n</th>
<th>Prevalence of Hyperlipidaemia n (%)</th>
<th>Crude mortality with Hyperlipidaemia n (%)</th>
<th>Crude mortality without Hyperlipidaemia n (%)</th>
<th>Adjusted Odds ratio for Mortality (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung Cancer</td>
<td>7997</td>
<td>473 (5.9%)</td>
<td>383 (81.0%)</td>
<td>6521 (86.7%)</td>
<td>0.78 (0.70-0.87)***</td>
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<td>Breast Cancer</td>
<td>5481</td>
<td>170 (3.1%)</td>
<td>47 (27.6%)</td>
<td>1962 (36.9%)</td>
<td>0.78 (0.70-0.87)***</td>
<td></td>
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<tr>
<td>Prostate Cancer</td>
<td>4629</td>
<td>271 (5.9%)</td>
<td>74 (27.3%)</td>
<td>2042 (46.9%)</td>
<td>0.53 (0.50-0.79)***</td>
<td></td>
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<tr>
<td>Bowel Cancer</td>
<td>4570</td>
<td>243 (5.3%)</td>
<td>125 (51.4%)</td>
<td>2716 (62.8%)</td>
<td>0.70 (0.58-0.84)***</td>
<td></td>
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Odds ratio adjusted for age, gender and ethnicity p < 0.05* p < 0.01* p < 0.001 CI= Confidence Intervals