Oral Presentations

Wednesday 9 September

Non-Communicable Disease: Cancer

OP01 HYPERTENSION AND RISK OF CANCERS OF THE KIDNEY AND URINARY TRACT IN UK WOMEN

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Background Hypertension has been associated with an increased risk of kidney cancer, but evidence of association with cancers elsewhere in the urinary tract is mixed. We examined the association between hypertension and the incidence of cancers of the kidney (by histotype), and urinary tract, in a large cohort of UK women.

Methods Participants were recruited in 1996–2001 from 66 NHS breast-screening centres, and completed a questionnaire on anthropometric, reproductive and lifestyle factors, and medical history, including self-reported hypertension requiring treatment. They were followed for cancer and death via record linkage to national registries. We used Cox regression models to estimate relative risks (RRs) of cancers of the kidney and urinary tract, associated with self-reported hypertension requiring treatment at recruitment, adjusted for potential confounders. Analyses were conducted in Stata 15.

Results In 1,319,718 women without previous cancer, 211,663 (16%) reported at recruitment that they were currently being treated for hypertension. After 16.9 years' (SD 4.6) mean follow-up, 5391 kidney cancers, including 4248 renal cell carcinomas and 442 urothelial carcinomas, accrued. Hypertension requiring treatment at recruitment was associated with a significantly greater increase in the risk of renal cell carcinomas (RR=1.69, 95% CI: 1.57–1.82) than urothelial carcinomas of the kidney (RR=1.27, 95% CI: 1.00–1.62); heterogeneity by histotype, p=0.02. There were no clear associations between hypertension at recruitment and the risk of urothelial carcinomas elsewhere in the urinary tract (ureter: n=249, RR=0.82, 95% CI: 0.57–1.17; bladder: n=2929, RR=1.00, 95% CI: 0.91–1.11). The association seen with renal cell carcinomas persisted even after exclusion of the first 10 years of follow-up (RR=1.69, 95% CI: 1.54–1.85), suggesting it was not an artefact of reverse causation.

Conclusion Hypertension is strongly associated with an increased risk of kidney cancer, with significant heterogeneity by histotype. The risk of renal cell carcinoma is substantially increased in those with a history of hypertension, but there is little or no association with urothelial carcinomas, either in the kidney or the rest of the urinary tract.

OP02 THE ROLE OF LEADERSHIP IN DRIVING CHANGE IN CANCER OUTCOMES IN HIGH INCOME COUNTRIES

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Background There is well-established variation in cancer survival and, despite general improvements over time, differential progress has been made across high-income countries with seemingly similar health systems. Research has explored the source of these differences in outcomes, but the role of leadership in cancer care systems has been under-researched. Leadership is one of the WHO 'building blocks' that underpin a functioning health system. It is variously defined as including governance, stewardship, responsibility and accountability.

As part of the International Cancer Benchmarking Partnership, this study looked at these diverse aspects of leadership to identify drivers of change and improvement across a range of high-income countries.

Methods Cancer strategy documents were analysed from 22 jurisdictions: Australia (3 states), Canada (10 provinces), Denmark, Ireland, New Zealand, Norway and UK (4 countries). Key informants in 15 of these jurisdictions, representing a range of stakeholders at the different tiers of the system, were recruited: hospital managers; regional and/or government officials; representatives from arms' lengths bodies, professional bodies and patient associations; experts within the cancer field and with wider health policy expertise. Key informants were identified through a combination of purposive and 'snowball' strategies. They participated in semi-structured interviews held in English, using online conferencing software. Documents and interview transcripts were analysed using a thematic approach using a framework based on the WHO health systems framework and previous work analysing national cancer control programmes.

Results Different facets of leadership emerged: diffused across health boards *vs* centralised (including the central role of a cancer agency in some places); the interplay between national, regional and local leadership structures; the establishment of links between primary and secondary care. The study demonstrated a central role of sustained leadership and political commitment, crucial for initiating and maintaining progress, as was a coherent vision that supported the implementation of national policies locally. Clinical leadership of the cancer care system emerged as vital for translating policy into action.

Conclusion Certain aspects of cancer care leadership emerged as underpinning and sustaining improvements. Improving cancer outcomes is challenging and complex, but it is unlikely to be achieved without effective leadership and sustained political commitment that can create effective co-ordination of care. These lessons can be applied to jurisdictions which are struggling to achieve the progress they might otherwise be able to, and to a variety of conditions.

OP03 FACTORS ASSOCIATED WITH NON-ATTENDANCE FOR CERVICAL SCREENING IN ENGLAND

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Background Previous studies have shown some differences in uptake of cervical screening by sociodemographic factors. However, the available evidence on other lifestyle, reproductive and hormonal factors is limited and inconsistent. We examined screening uptake in relation to sociodemographic, lifestyle, reproductive and hormonal factors by linking data

from a large prospective cohort, the Million Women Study (MWS), with the nationwide NHS Cervical Screening Programme records.

Methods Using linked NHS Cervical Screening Programme records for women before they were recruited into the MWS study, participants were classified as non-attenders or attenders for routine cervical screening. Logistic regression models were used to calculate odds ratios (OR) and 95% confidence intervals (CI) of non-attendance versus attendance by deprivation status, smoking history, body mass index (BMI), parity, age at first birth, oral contraceptive (OC) use and menopausal hormone therapy (MHT) use. All analyses were stratified by year of birth and year of recruitment into the MWS and adjusted for other factors, where appropriate.

Results Of 871,732 study participants who were eligible to have been invited for cervical cancer screening, 25,261 were non-attenders and 846,471 were attenders. The odds of being a non-attender were increased with deprivation (OR [95%CI] 1.46 [1.40–1.53] for most versus least deprived fifth), obesity (1.38 [1.33–1.43] for BMI $\geq$30 versus 20–25/kgm^2) and smoking (1.25 [1.19–1.30] for heavy current smokers versus never smokers). Nulliparous women were much more likely to be non-attenders (5.80 [5.28–6.38]) and women who were younger at their first birth were also less likely to attend (1.24 [1.12–1.37] for <17 versus $\geq$25 years at first birth). By contrast, women who had used OCs or MHT were much less likely to be non-attenders (0.38 [0.37–0.40] for $\geq$10 years versus never OC use and 0.33 [0.32–0.35] for current versus never MHT use).

Conclusion In this large cohort of women in England, attendance for cervical screening varied considerably, not only by deprivation, as had been reported previously, but also by lifestyle, reproductive and hormonal factors. Non-attendance was associated with obesity, heavy current smoking, nulliparity, giving birth at younger ages, and non-use of OCs or MHT.

OP04 ANTIOXIDANT BIOMARKERS AND RISK OF PROSTATE CANCER DEATH: A COLLABORATIVE ANALYSIS OF INDIVIDUAL PARTICIPANT DATA FROM 13 PROSPECTIVE STUDIES

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Background Antioxidant micronutrients may affect the development and progression of prostate cancer. We conducted a pooled analysis of the associations of the concentrations of several antioxidant biomarkers with risk of prostate cancer death in the Endogenous Hormones, Nutritional Biomarkers and Prostate Cancer Collaborative Group.

Methods Principal investigators of prospective studies provided individual participant data for prostate cancer cases and controls on circulating concentrations of carotenoids, retinol, and tocopherols, and blood and toenail selenium, including a total of 12 biomarkers. Data were available for up to 1196 prostate cancer deaths and 2441 controls from up to 13 studies. Risk by study-specific fifths of each biomarker was estimated using multivariable-adjusted conditional logistic regression in matched case-control sets.

Results Carotenoids, retinol and tocopherols were not significantly related to risk of prostate cancer death. The only statistically significant finding was an inverse association between toenail selenium concentrations and risk of prostate cancer death (OR for the highest compared with the lowest fifth 0.37, 95% CI 0.26–0.52, the median time of follow-up from blood collection to death from prostate cancer for cases was 11.8 years); however, circulating selenium concentrations were not associated with risk (OR for highest fifth 0.94, 0.64–1.38).

Conclusion Although we found that men with higher concentrations of toenail selenium had a lower risk of dying from prostate cancer, this should be interpreted cautiously due to the inconsistency between the results for toenail and blood measures of selenium.

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On behalf of the Endogenous Hormones, Nutritional Biomarkers and Prostate Cancer Collaborative Group (EHNBPCCG).

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Food: Industry

OP05 UNHEALTHY COMMODITIES AND THE ENGLISH PREMIER LEAGUE. MARKETING GAMBLING, SUGARY DRINKS AND ALCOHOL TO A GLOBAL AUDIENCE

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Background There is increasing awareness of the impact of corporate policies on health and how the consumption of unhealthy products contributes to the global burden of non-communicable disease. Public health academics are reviewing the activities of commercial actors that influence the disease burden and comparing the strategies of these unhealthy commodity industries which include the alcohol, food and beverage and gambling industries. The English Premier League (EPL) is considered to be the most viewed sports league internationally and is broadcast to 212 territories; a truly 'global football league'. The league's commodification and huge audience has enabled a rise in commercial activities and an increased income for clubs through their sponsorship and broadcasting arrangements.

Methods Five EPL matches in 2019 (in the 2018/19 and 2019/20 football seasons) were recorded as broadcast on BT Sport and Amazon Prime in the UK. This study quantified visual marketing references to unhealthy products in the broadcasting. All segments of broadcast (including commercial breaks) were manually coded using a content analysis for marketing references to unhealthy products. Coding variables included location (e.g. pitch border and shirt front) and format (e.g. electronic).

Results In these five EPL matches, a mean of 24.46% of all footage included at least one reference to an unhealthy commodity. However, this varied considerably between matches with a high of 38.97% at the Newcastle United v