Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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173P A deep learning model to predict competing cancer and cardiac risks after anthracycline exposure for early breast cancer

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Background: Clinical trials have demonstrated that anthracycline chemotherapy for the adjuvant treatment of early breast cancer (EBC) reduces breast cancer mortality but increases cardiac risk. Attempts to quantify this risk in routine care have been limited by short follow up and inability to adjust for confounding factors and competing risks. The aim of this study was to implement a deep learning framework to quantify excess cardiac risk from anthracycline chemotherapy in real-world care.

Methods: Patients treated surgically for stage I-III invasive breast cancer between 2000 & 2016 were identified from in the Scottish Cancer Registry. Information on treatment and clinical outcomes was captured by linkage to the Scottish Morbidity Record and a regional audit database. The primary outcome was a composite of cardiac diagnosis or cardiac death. The cause-specific cumulative incidence function was used to calculate pseudo survival probabilities for the primary outcome, and the competing risks of death from breast cancer and death from other causes. A deep learning framework was constructed to predict patient survival probabilities and competing risk types at discrete time points, given the pseudo values and patient covariants.

Results: 4080 EBC patients were identified, 1658 received an anthracycline-based chemotherapy, 297 received non-anthracycline chemotherapy & 2125 received no chemotherapy. At a median follow up of 8.2 years, 448 cardiac events & 559 breast cancer deaths occurred. After hyper-parameter tuning, the deep learning model predicted cardiac events at 8 years with high confidence (F1-score=0.89), and survival probabilities comparable to the more traditional Fine & Gray model; C-index 0.66, [95% CI 0.62, 0.70] vs. 0.65, [95% CI 0.61- 0.69]).

Conclusions: Taking into account competing risks, there was no statistically increased rate of cardiac events in women treated with anthracycline compared with non-anthracycline chemotherapy or no chemotherapy. The comparable results found with traditional methods in this study is consequence of the reliance on base-line co-variants. Further research will explore time varying covariates. Real world evidence appears reassuring for women treated with anthracyclines for EBC.

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174P Breast cancer (BC) and severe COVID-19 (C-19) outcomes: A matched analysis

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Background: Patients with cancer, particularly those receiving anticancer treatment, have a higher risk of severe (C-19) outcomes. We examine the association between BC, recent treatment, and adverse C-19 outcomes.

Methods: Retrospective matched cohort study using the Optum®de-identified COVID-19 Electronic Health Record dataset. Patients diagnosed with C-19 (01/01/2020-12/20/2021) were categorized into 3 groups: No cancer; patients with BC and recent anticancer treatment (surgery, radiation, chemotherapy, immunotherapy, endocrine therapy within 3 months); and BC without recent treatment. Groups were matched based on age, date of C-19 diagnosis, and comorbidity score. We evaluated 30-day mortality, mechanical ventilation, intensive care unit (ICU) stay, and hospitalization. A composite ordinal outcome including all outcomes was analyzed. Multivariable logistic regression models were used. Results are presented as odds ratios (OR 95%CI).

Results: 2200 matched triplets (1:1:10) of BC treated, BC not treated, and non-cancer patients were included (median age 65 years). The rates of most adverse outcomes improved in 2021 compared to 2020 (mortality 0.2% vs 2.9%, mechanical ventilation 0.1% vs 3%; ICU stay 0.2 vs 4.5%, hospitalization 22.4% vs 23.6%). Compared to non-cancer patients, those with BC recently treated had a similar risk of adverse outcomes, while patients with BC not recently treated had a lower risk of ICU stay and hospitalization and a similar risk of mortality and mechanical ventilation. Using the composite ordinal variable, BC recently treated had similar outcomes (OR 1.02; 95%CI 0.93-1.11) to non-cancer patients, and BC patients not recently treated had better outcomes (OR 0.66; 95%CI 0.59-0.74). Chemotherapy within 3 months was associated with a higher risk of ICU (OR 1.81; 95%CI 1.02-3.23) and hospitalization (OR 2.3; 95% 1.76-2.99). Vaccination prior to C-19 was reported in 3.6, 5.8, and 5.5% of non-cancer, BC treated, and BC not treated patients; vaccination was associated with improved outcomes.

Conclusions: Patients with BC have a similar risk of adverse C-19 compared to non-cancer patients. Subgroup analysis suggests that patients recently receiving chemotherapy had a higher risk of ICU stay and hospitalization.

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175P Patients' experiences of a suppoRted self-manAGeMent pAThway in breast cancer (PRAGMATIC): Quality of life results

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Background: The National Health System (NHS) Long Term Plan for Cancer prioritises the implementation of Personalised Stratified Follow up and Supported Self-management (SSM) in early breast cancer (EBC). PRAGMATIC evaluated the experiences of EBC patients entering SSM and the impact on quality of life (QoL).

Methods: Three clinical teams in Surrey and Sussex identified EBC patients due to enter SSM. Participants completed questionnaires at baseline, 3, 6, 9 and 12 months to assess QoL (FACT B & EQ-5D-5L), self-efficacy (GSE), psychological morbidity (GHQ-12) and roles and responsibilities (PRRS).

Results: Between February and November 2020, 110 patients were recruited; 99 (90%) completed 12 month assessments. Majority were >50years (91; 83%), had a partner (73; 66%), and on endocrine therapy (86; 78%). 32% (35/110) had received chemotherapy. Patients who had chemotherapy had lower QoL (lower FACT-B) over time compared to the no chemotherapy group, although there was greater improvement compared to baseline at 6, 9 and 12 months. The chemotherapy group also had lower self-efficacy (GSE) scores but there was no statistically significant change over time in either group. Psychological morbidity at baseline (GHQ12) had a significant effect on mean FACT-B total score, indicating a considerable QoL decline for patients who had higher levels of psychological morbidity compared to those who did not (mean difference -21.63, 95% confidence interval -27.42 to -15.84). The odds of psychological morbidity were estimated to be 5.5-fold greater for patients who had chemotherapy, although the 95% confidence interval was wide (1.17 - 25.9) due to a small sample size. 10 patients had persistently high levels of psychological morbidity for 12 months. The burden from caring or financial responsibilities (PRRS) was greater for the chemotherapy group, but there was greater improvement at 9 months compared to the no chemotherapy group.

Conclusions: QoL was significantly impacted by high levels of psychological morbidity. BC teams could consider screening all patients for heightened anxiety/depression before starting SSM and offering interventions or closer monitoring for the first 6 months.

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