Impact of COVID-19 on Breast Cancer Treatment: a Tertiary Referral Centre Experience (#531)


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Introduction
We are a London tertiary referral centre treating approximately 500 patients with breast cancer each year. As Oncologists, we rely upon evidence to anticipate the benefits and risks of cancer treatments but at the outset of the pandemic there was no evidence about COVID-19 and its effects on our patients. Although a study of 18 oncology patients in China suggested that early experience increased morbidity and mortality, these findings could not reliably be applied to our patient population. We moved rapidly from face-to-face consultations to telemedicine, with GP or district nurse administration of non-intravenous oral medications and postural of oral medications. In addition, there was threat of reduced theatre capacity, prompting us to curtail neoadjuvant therapy and endocrine surgery. We re-evaluated the management of each of our patients, making decisions based upon: risk of exposure to COVID-19 from attending hospital, perceived risk of severe COVID-19 infection in light of comorbidities and specific oncological treatments, patient preference and benefits of continuing cancer therapy. Studies have looked at the impact of COVID-19 infection on cancer patients, but have not addressed the wider impacts of the pandemic on these individuals. We therefore aimed to evaluate the effects of COVID-19 on the diagnosis and medical treatment of breast cancer in the UK.

Methods
We defined two, 8 week study periods: March 23rd (the start of the first national lockdown) - May 17th 2020 and May 25th - May 19th 2019. Using our electronic database (ARRA Oncology Information System, Vivian Medical Systems) we identified all patients with primary or metastatic breast cancer scheduled to receive systemic anti-cancer treatment (SACT) on our chemotherapy unit during either study period. Deviations from original treatment plans (including treatment modifications, delays or cessation of SACT and/or whether COVID-19 related or otherwise) were recorded. Finally, referrals to the Breast Oncology Service and patient attendance to our outpatient treatment each week were assessed (version 8.4.3).

Results
The number of patients with a breast cancer treatment requiring hospital attendance planned during the 8 week study period was 318 in 2019 compared to 312 in 2020. During these study periods, similar attendances for treatment were almost 40% lower in 2020 (605 or mean 75.6/week in 2019 vs 399 or mean 46/week in 2020). Weekly attendances increased over the 2020 study period and so was down only 16% compared to 2019 by week 8, having been down 57% in week 1 (Figure 1). Referrals to the Breast Oncology Service were 38.2% lower in 2020 (62 in 2019 v 41 in 2020) and consequently, 33.9% fewer patients received their first cycle of treatment (58 in 2019 v 41 in 2020).

Chemotherapy, HER2 targeted treatments and oral SACT (Figure 3)
Almost 85% (28/33) of patients due to receive neoadjuvant chemotherapy in 2020 had their treatment changed, compared with just 4.2% (12/294) in 2019. The 15.2% (503) of patients whose chemotherapy were unaffected in 2020, almost half had their chemotherapy stopped early to proceed to surgery. Reasons for not resuming chemotherapy in the adjacent setting (40% or 75.5%) were treatment almost complete (324 or 12.5%), pathological complete response at surgery (92 or 20.8%) and patient choice (124 or 4.2%).

Figure 1 - Outpatient treatment unit weekly attendance during study periods 2019 and 2020

Figure 2 - Changes to planned treatment for patients on Adjuvant endocrine therapy and CD/ HER2 treatments during 2020 study period

Almost 25% (8/33) of patients receiving adjuvant HER2 targeted therapies (Trastuzumab +/- Pertuzumab and Kadcyla) without additional chemotherapy in 2020, had their treatment altered, compared to zero in 2019. Those that stopped (631 or 5.5%) were on single-agent Trastuzumab and had all completed at least 10 cycles. Three (8.1%) defined delays were patient choice. Of 35 patients on palliative HER2 treatments in 2020, 15 or 42.9% had their treatment changed due to COVID-19. 9 of these (60%) stopped to 4 weekly treatments, 5 (14.3%) were delayed (mean 11, range 3-16 weeks) and 2 (5.7%) stopped HER2 treatment but continued endocrine therapy.

Parenteral endocrine treatments and bone modifying agents (Figure 2)
With the exception of 2 patients (9.5%), who chose to delay their treatment in order to avoid hospital attendance, adjuvant parenteral endocrine therapies in 2020 were unaffected. However, 124 (4.2%) of patients receiving CDI were affected. Those requiring Goserelin, Fulvestrant or both in 2020 had their treatment altered – mostly (694 or 18.4%) delayed.

Most patients (3705 or 67.3%) receiving adjuvant Zolendronic acid in 2020, had their treatment delayed (average 14.9, range 6-28 weeks) in order to avoid hospital attendance. Similarly 34/81 (42.9%) patients requiring Pamidronate had their treatment delayed (average 13, range 4-21 weeks), with 20.6 (7/34) of them receiving intravenous in the interim.

Conclusion
We show that during the first wave of COVID-19, breast cancer diagnosis and treatment delivery was significantly affected in our centre. Diagnosis was reduced due to the halt of mammographic screening, and treatment changed most noticeably in neoadjuvant patients and those on intravenous biologicals. The impact on the future survival of these patients is uncertain. Whilst recovery is evident, better efforts must be made in future to protect patients and cancer services during further outbreaks.

References

Kirsty Balachandran holds an MRC clinical research fellowship training. Kirsty Balachandran and Jennet Williams have no conflicts of interest to declare. Corresponding author email: L.Kenny@imperial.ac.uk