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Research Letter to Editor

Impact of COVID-19 on Geriatric Oncology services in a single centre in the UK: Effect on service delivery and clinical characteristics of older patients with cancer seen via pre- and post- retrospective service evaluation

Nayanatara Nadeesha Tantirige^{a,*}, Nicola Yoganayagam^a, Ghania Ilyas^a, Yanzhong Wang^b, Danielle Harari^{a,c}, Tania Kalsi^{a,c,*}

^a GOLD, Department of Ageing & Health, Guy's & St Thomas' NHS Foundation Trust, Guy's Hospital, Great Maze Pond, London SE1 9RT, UK

^b School of Population Health & Environmental Sciences, King's College London, UK

^c Division of Health & Social Care Research, Kings College London, 5th Floor Addison House, Guy's Campus, London, SE1 1UL, UK

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1. Introduction

The COVID-19 pandemic has added new challenges to the delivery of care in older patients with cancer. Advanced age, malignancy, and multi-comorbidities are associated with increased severity of COVID-19 disease and subsequent mortality [1,2]. There has become a difficult balance of risk versus benefit for all cancer treatment types during the pandemic, with decision-making most complex for those with multiple comorbidities or frailty. In March 2020, United Kingdom (UK) government mandated health service changes came into effect to accommodate the treatment of large numbers of COVID-19 patients. This included increased use of digital platforms, reduction of face-to-face appointments, suspension of routine services, and increase in hospital bed capacity to accommodate COVID-19 patients. Elective admissions reduced by 71.8%, and outpatient attendances reduced by 56% [3]. There was a significant impact on cancer services within the UK and internationally, where some cancer surgeries were postponed. Systemic anticancer treatment and radiotherapy was delivered cautiously with national guidance on risk assessment.

International and society-specific guidelines guided the initial approach to cancer care early on in the pandemic. The European Society for Medical Oncology (ESMO) recommended increasing telemedicine consultations, reducing clinic visits, and switching to subcutaneous or oral therapies rather than intravenous therapy [2]. The British

Association of Surgical Oncology (BASO) advised a multi-disciplinary team approach to identify patients who required urgent surgery and to defer surgery where able [4]. The International Society of Geriatric Oncology (SIOG) gave recommendations on the delivery of a geriatric assessment in resource-constrained settings, including telehealth care, early and periodic review of care goals, advanced care planning, and coordinated care to minimise hospital appointments [5]. These approaches were locally adapted, as there were no national guidelines specifically relating to geriatric oncology services in the UK.

Geriatric Oncology services deliver comprehensive geriatric assessments (CGAs) to support cancer treatment decisions and optimise patients to reduce treatment toxicities [6]. There is limited data on the effects of the COVID-19 pandemic on Geriatric Oncology services. This service evaluation aims to highlight the changes to a Geriatric Oncology service at a single centre in London during the pandemic, with a view to identifying the challenges, gains, and needs for focus in the ongoing development of such services.

2. Materials and Methods

This service evaluation was conducted in a Geriatric Oncology service in a central London hospital providing cancer care to patients aged 65 and older living locally and across southeast England. The service reviews older patients receiving any non-surgical cancer treatments

* Corresponding authors at: GOLD, Department of Ageing & Health, Guy's & St Thomas' NHS Foundation Trust, Guy's Hospital, Great Maze Pond, London SE1 9RT, UK.

E-mail addresses: nayanatara.tantirige@nhs.net (N.N. Tantirige), tania.kalsi@gstt.nhs.uk (T. Kalsi).

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(surgical patients have a separate surgery-specific CGA service). Patients are referred from oncology teams based on needs. Activity in cancer services are critically linked to the number of cases referred to the Geriatric Oncology service.

We retrospectively reviewed consultations between 1 January 2020–31 July 2020. The number of consultations were compared across three time periods, split by local pandemic activity: pre-COVID-19 (01.01.20–13.03.20), first wave COVID-19 (14.03.20–01.06.20) and post-first wave recovery (02.06.20–31.07.20). Activity data was compared to usual activity in 2019. Differences in demographics, clinical characteristics, and necessary interventions between patients seen between the three time periods were also compared.

Face-to-face new consultations were reviewed in-depth via a retrospective review of electronic clinical information. SPSS software was used for data analysis. One-way ANOVA, Kruskal–Wallis test, and Chi square/Fischer’s Exact test were used to compare groups. Ethical approval was checked with the National Health Service (NHS) Health Research Authority decision tool and was not required for this service evaluation.

3. Results

Two hundred sixty-seven consultations were performed face-to-face in the seven-month review period compared to annual activity of 968 in 2019 (Table 1). There was a reduction in the mean number of referrals in the build up to the first wave, but especially during the first wave, resulting in a significant reduction in mean face-to-face appointments per week. This improved during the recovery period, but not back to the usual activity. Although telephone clinic activity saw a reduction during the first wave, it was more preserved compared to face-to-face activity (484 telephone reviews in seven months, compared to 949 telephone annual activity in 2019) (Table 1). Those seen face-to-face needed follow-up more often via telephone as we moved through the pandemic: 78.7% pre-pandemic, 88.9% first wave COVID-19, and 90.8% in first wave recovery period. More cases were referred early (pre-cancer treatment) during the first wave and recovery periods, when compared to the pre-COVID-19 time period ($p = 0.023$) (Table 1).

There were no significant differences in age, co-morbidities, or dependency between the three time periods, nor a difference in the number of interventions required per patient, $p = 0.282$. On average 6.6–7.6 interventions (range 0–25) were carried out per patient. The most common interventions were medication changes, referral to others, and physiotherapy input. Physiotherapy interventions trended up in the first wave of the pandemic and the recovery phase. Less occupational therapy input was required ($p = 0.003$). There were greater diabetes interventions during the first wave and recovery periods ($p = 0.02$).

4. Discussion

This service evaluation highlights some of the key changes that occurred in a Geriatric Oncology service during the first wave of the pandemic. There was a significant reduction in referrals to the Geriatric Oncology service during the first wave, likely reflecting the reduced number of patients with frailty receiving systemic anticancer therapies. These observations are consistent with effects seen globally [7]. Clinical guidance at the time set a high bar for fitness for cancer treatment given the added risks of harm with COVID-19. Early recommendations were to defer anti-cancer therapies where possible, although this view changed further on in the pandemic [8].

The Geriatric Oncology service was open to referrals and accessible as usual during the pandemic. Referrals were, however, triaged to remote assessment where possible. Staff were redeployed elsewhere, but

Table 1

Appointment activity, patient demographics, cancer treatments, and interventions in a geriatric oncology clinic pre-, during and post- first wave of the COVID-19 pandemic.

1. Appointment activity				
	2019 annual data	2020 Pre-COVID-19 period	2020 First wave COVID-19 period	2020 First wave recovery period
<i>Face-to-face clinics</i>				
Total appointments	968	160	29	78
Mean appointments/week	18.6	14.9	2.6	9.1
New appointments	78% (752/968)	81% (130/160)	83% (24/29)	90% (70/78)
Face-to-face follow up appointments	22% (216/968)	19% (30/160)	17% (5/29)	10% (8/78)
<i>Telephone clinics</i>				
Total appointments	949	176	167	141
Mean appointments/week	18.3	16.9	14.8	16.7
2. Patient demographics				
	P value	Pre-COVID-19% (N = 160)	First wave COVID-19% (N = 29)	First wave recovery % (N = 78)
Age (Years) Mean +/- SD (range)	0.113	74.3 +/- 7.6 (51–91)	71.4 +/- 7.6 (58–88)	72.9 +/- 8.4 (48–89)
Comorbidities Mean +/- SD (range)	0.063	5.0 +/- 2.6 (0–14)	4.6 +/- 2.6 (1–12)	5.7 +/- 2.6 (1–12)
<i>Co-morbidities breakdown</i>				
Diabetes	0.215	32.7% (52/159)	24.1% (7/29)	41.0% (32/78)
Hypertension	0.540	44.0% (70/159)	55.2% (16/29)	46.2% (36/78)
Ischemic heart disease of congestive cardiac failure	0.825	21.4% (34/159)	20.7% (6/29)	17.9% (14/78)
Respiratory condition	0.121	23.3% (37/159)	6.9% (2/29)	23.1% (18/78)
Dementia or Mild Cognitive Impairment	0.325	22.6% (36/159)	10.3% (3/29)	23.1% (18/78)
Activities of Daily Living (ADL) dependency*	0.830	12.0% (17/142)	11.5% (3/26)	9.6% (7/73)
Instrumental Activities of Daily Living (IADL) dependency*	0.644	39.4% (54/137)	42.3% (11/26)	33.8% (25/74)
3. Cancer type, stage and treatment				
		Pre-COVID-19% (N = 160)	First wave COVID-19% (N = 29)	First wave recovery % (N = 78)
<i>Cancer type</i>				
Urology		46.3% (74/160)	24.1% (7/29)	48.7% (38/78)
Lung		11.9% (19/160)	10.3% (3/29)	16.7% (13/78)

(continued on next page)

Table 1 (continued)

Breast	7.5% (12/160)	3.4% (1/29)	3.8% (3/78)
Haematology	6.9% (11/160)	3.4% (1/29)	5.1% (4/78)
Gastrointestinal	12.5% (20/160)	20.7% (6/29)	5.1% (4/78)
Head and Neck	3.8% (6/160)	10.3% (3/29)	6.4% (5/78)
Hepatobiliary	3.1% (5/160)	6.9% (2/29)	5.1% (4/78)
Gynaecological	2.5% (4/160)	17.2% (5/29)	3.8% (3/78)
Other	3.1% (5/160)	3.4% (1/29)	5.1% (4/78)
Cancer stage at referral			
Metastatic	51.2% (82/160)	51.7% (15/29)	61.5% (48/78)
Non-metastatic	48.1% (77/160)	48.3% (14/29)	37.2% (29/78)
In remission	0.6% (1/160)	0	1.3% (1/78)
Where in cancer treatment at referral			
Pre-treatment	21.3% (34/160)	34.5% (10/29)	37.2% (29/78)
At other stages of treatment (during/after/post treatment/ Best-Supportive-Care)	78.8% (126/160)	65.5% (19/29)	62.8% (49/78)
Cancer treatment at date of referral to Geriatric-Oncology			
Chemotherapy	32.5% (52/160)	44.8% (13/29)	25.6% (20/78)
Hormones	30.0% (48/160)	10.3% (3/29)	32.1% (25/78)
Radiotherapy	11.9% (19/160)	20.7% (6/29)	11.5% (9/78)
Biological therapy, immunotherapy, targeted therapies	4.4% (7/160)	13.8% (4/29)	16.7% (13/78)
Chemotherapy and hormones	4.4% (7/160)	3.4% (1/29)	0.0% (0/78)
Radiotherapy and hormones	3.8% (6/160)	3.4% (1/29)	1.3% (1/78)
Chemotherapy and Radiotherapy	3.1% (5/160)	0.0% (0/29)	0.0% (0/78)
Surgery	2.5% (4/160)	0.0% (0/29)	0.0% (0/78)
Biological and hormones	0.6% (1/160)	0.0% (0/29)	2.6% (2/78)
Biological and chemotherapy	0.0% (0/160)	0.0% (0/29)	1.3% (1/78)
Best Supportive Care	0.6% (1/160)	0.0% (0/29)	3.8% (3/78)
Surveillance watchful wait	6.3% (10/160)	3.4% (1/29)	5.1% (4/78)

4. Interventions

	Pre- COVID- 19% (N = 160)	First wave COVID-19% (N = 29)	First wave recovery % (N = 78)
Total number of interventions for all consultations	1054	195	589
Mean +/- SD interventions per patient (range)	6.59 +/- 3.52 (0–18)	6.72 +/- 3.32 (0–12)	7.55 +/- 4.10 (1–25)
1+ medication changes	66.9% (107/160)	82.8% (24/29)	59.0% (46/78)
Physiotherapy input	39.4% (63/160)	51.7% (15/29)	57.7% (45/78)
Occupational input	40.6% (65/160)	21.4% (6/28)	20.5% (16/78)
Social	18.7% (30/160)	3.4% (1/29)	5.1% (4/78)

Table 1 (continued)

Nutrition	30.2% (48/159)	31.0% (9/29)	19.2% (15/78)
Anaemia	21.9% (35/160)	24.1% (7/29)	12.8% (10/78)
Plan for abnormal tests	35.0% (53/160)	27.6% (8/29)	17.9% (14/78)
Bladder	28.3% (45/159)	10.3% (3/29)	20.5% (16/78)
Bowel	19.4% (31/160)	37.9% (11/29)	19.2% (15/78)
Cardiac	23.1% (37/160)	27.6% (8/29)	29.5% (23/78)
Respiratory	8.1% (13/160)	3.4% (1/29)	10.3% (8/78)
Renal	6.2% (10/160)	10.3% (3/29)	7.7% (6/78)
Diabetes	23.1% (37/160)	37.9% (11/29)	39.7% (31/78)
Pain	21.9% (35/160)	13.8% (4/29)	23.1% (18/78)
Hypertension	20.0% (32/160)	13.8% (4/29)	12.8% (10/78)
Postural hypotension	21.2% (34/160)	3.4% (1/29)	16.7% (13/78)
Osteoporosis	31.4% (50/159)	20.7% (6/29)	32.1% (25/78)
Falls	16.2% (26/160)	0.0% (0/29)	5.1% (4/78)
Mental Health input/treatment/ referral	19.4% (31/160)	27.6% (8/29)	14.1% (11/78)
New memory impairment identified	13.7% (22/160)	10.3% (3/29)	16.7% (13/78)
Memory intervention/referral	18.1% (29/160)	10.3% (3/29)	19.2% (15/78)
Other intervention needed	21.2% (34/160)	41.4% (12/29)	42.3% (33/78)
Dietician referral	8.1% (13/160)	6.9% (2/29)	1.3% (1/78)
District Nurse referral	5.6% (9/160)	3.4% (1/29)	3.8% (3/78)
Palliative Care referral	7.5% (12/160)	3.4% (1/29)	3.8% (3/78)
Financial support referral	6.9% (11/160)	0.0% (0/29)	1.3% (1/78)
Complimentary therapies referral	3.7% (6/160)	0.0% (0/29)	1.3% (1/78)
Other referrals	28.1% (45/160)	13.8% (4/29)	14.1% (11/78)

* via clinical assessment.

this was not felt on the clinical service due to the relative reduction in referrals. Prior to the pandemic, telephone clinics were only for the purpose of follow up (e.g., symptoms, tests). These were designed to avoid further trips to the hospital for discussions that could be managed remotely. All new appointments pre-pandemic were face-to-face, some of which converted to telephone assessments during the pandemic. This reflects early UK government policy which encouraged socially distanced service delivery [8,9].

The first wave saw an increase in proactive referrals prior to anti-cancer treatment, with this pattern continuing in the recovery phase. It is possible that the pandemic supported some shift in clinical practice in oncology to better utilise Geriatric Oncology services to support risk assessment and to pre-emptively minimise treatment toxicities, rather than responding to adverse events. Randomised controlled trial evidence is emerging to support this proactive approach [6].

Patients attending the Geriatric Oncology service had similar characteristics and required similar amounts of input across the three time periods. Physiotherapy input needs trended upwards, which may reflect physical inactivity and deconditioning during the first wave of COVID-19 experienced by older patients due to lockdown and shielding measures [9]. There was a small number of young patients (age < 65 years)

who attended the Geriatric Oncology clinic with complex comorbidities, highlighting that a CGA approach should be offered regardless of age.

Anecdotally, the time required for managing individual patients in the service seemed far greater than before the pandemic with greater clinical complexity. Whilst this is not reflected in the mean number of comorbidities or interventions required at the first face-to-face appointment, it appears to be reflected in the increasing number of telephone follow-up appointments. The service was initially designed around a one-stop approach. This is now evolving towards ongoing case management which has workforce implications.

The limitations of our evaluation include the small sample size of patients attending a single centre. We did not compare our patients against those who proceeded to anti-cancer therapies without Geriatric Oncology service input. Geriatric Oncology service models differ across the UK, and across the world, related to geriatrician and other resource availability. This service is perhaps more resource-rich than alternative models available. Therefore, this data may not be generalisable for services who deliver CGA interventions differently. The case notes were reviewed retrospectively, so the accuracy was dependant on clinical documentation. This was mitigated through structured clinical letter templates used in clinic. A prospective evaluation would have improved accuracy of the data, although would have been challenging to deliver during the pandemic due to increased strain on healthcare workforce resources.

The experiences from the pandemic have enabled us to reflect on adaptations to Geriatric Oncology services in the future. Further use of telemedicine seems to have a role in more frequent follow-up for complex case management, delivering remote therapy interventions, and virtual support to staff in other medical specialities. It can, however, have access limitations for older patients [10]. It was challenging to deliver high quality first clinical assessments remotely, and further disadvantages included lack of access to therapy staff, which patients have when attending in-person. It has become clear that developing the non-geriatrician workforce in delivering better Geriatric Oncology care is critical and training individuals in this is essential.

Current and future pandemics will continue to bring challenges for cancer care in older patients. Geriatric Oncology services will need to adapt to enable earlier timely input, greater physical therapy input, and greater ongoing case management to support patients. Geriatric Oncology experts need to find ways to share expertise more widely. CGA may become even more critical to making better informed, difficult risk vs. benefit cancer treatment decisions to reduce risks of harm from cancer treatment toxicity.

Ethics Approval and Consent to Participate

NHS Health Research Authority ethical approval sought and they have deemed that the project does not require ethical approval.

Authors' Contributions

Nayanatara Nadeesha Tantrige: Data Collection, Analysis and Interpretation of Data, Manuscript Writing, Approval of Final Article.

Nicola Yoganayagam- Manuscript Writing, Approval of Final Article.

Yanzhong Wang- Analysis and Interpretation of Data, Approval of Final Article.

Ghania Ilyas- Data Collection.

Danielle Harari- Manuscript Writing, Approval of Final Article.

Tania Kalsi- Conception and Design, Analysis and Interpretation of Data, Manuscript Writing, Approval of Final Article.

Declaration of Competing Interest

None.

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