MORBIDITY AND MORTALITY ANALYSIS IN PATIENTS ACQUIRING COVID-19 FOLLOWING MAJOR ONCOLOGICAL SURGERY IN A TERTIARY CANCER CARE CENTRE

Oncology

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ABSTRACT

Introduction : SARS CoV-2 infection has been creating havoc in the world since it was first detected and reported in Wuhan, China in December, 2019. It gradually spread all over the world and became an international emergency. No age is immune to this virus and can affect anyone. Some carriers may be asymptomatic and may act as a potential source of infection. Cancer patients are considered to be a high risk group for contracting this infection with a higher morbidity and mortality. This article analyses the impact and outcome of COVID-19 after major oncological resections.

Methods : A retrospective analysis on the morbidity and outcome of COVID-19 in cancer patients after major oncological resections were done from a prospectively maintained database. They were studied from 16th July, 2020 to 30th September, 2020. All surgical candidates underwent a mandatory RTPCR test for COVID-19 pre-operatively. Only the surgical cases who were pre-operatively negative for COVID-19 and then became positive in the post-operative period were taken for analysis.

Results : A total of 299 major oncological surgeries were performed during the period of study. Out of these, 10 cases developed COVID-19 in the post-operative period and were taken up for the study. 7 out of the 10 cases were head and neck oncological resections. 4 cases had taken neo-adjuvant chemotherapy before surgery. 2 of the cases died which had probable handling of the aero-digestive tract as a part of the oncological resections.

Conclusion : Cancer care has to continue even in the midst of an ongoing pandemic. Hence, identification of the factors which might increase the vulnerability of these patients is important so that extra care can be taken to protect them.

KEYWORDS

COVID-19, major oncological resections, neo-adjuvant chemotherapy

INTRODUCTION :

A novel corona virus, named SARS CoV-2, has been creating havoc in the world since it was first detected and reported in Wuhan, China in December, 2019 (1). The virus usually affects the lung and can cause pneumonia. Despite all isolation efforts, it gradually spread globally, became an international emergency and was eventually declared a pandemic by World Health Organisation in March, 2020.

The usual symptoms of Corona Virus Disease – 2019 (COVID-19) are fever, myalgia, cough, breathing difficulty, fatigue, anosmia. Some carriers may be asymptomatic as well. No age is immune to this virus and it can affect people of any age group (2). The Covid-19 related mortality has been reported to be around 2-5% (3). However, some high risk patients have been identified. People with comorbidities like diabetes, hypertension, kidney disease, heart disease are at a higher risk of developing severe form of the infection. Cancer patients are also more likely to contract this infection. Patients undergoing chemotherapy or oncological surgeries are the most vulnerable and are associated with a higher morbidity and mortality (4).

This article shares our institutional experience of the impact and outcome of COVID-19 affected patients after undergoing major oncological surgeries and to identify whether there is any high risk category among this group of patients.

METHODOLOGY :

We have analysed the outcome of our post-operative patients, from a prospectively maintained database, who have undergone major oncological surgeries and were infected with SARS CoV-2. All these cases underwent a pre-operative swab test for COVID-19 and then

again in the post-operative period after they developed symptoms. The cases were analysed from 16th July, 2020 to 30th September, 2020 as all surgical patients in our institute underwent a mandatory pre-operative RTPCR test for Covid-19 only after 16th July, 2020. The cases were assessed and compared on the basis of age, gender, any associated comorbidity, site of primary disease, type of surgery, grade of surgery, neo-adjuvant chemotherapy administered and their post-operative outcome up to 1 month post-surgery. Only the surgical cases who were pre-operatively negative for COVID-19 and then became positive in the post-operative period were taken for analysis.

RESULTS :

A total of 299 major oncological surgeries were performed during the said period. All cases underwent RTPCR test for COVID-19 before admission and the cases were taken up for surgery only if they were negative for SARS CoV-2 infection. However, in the post-operative period, 10 cases developed symptoms and were tested for COVID-19 (10/299 = 3.34%). This group of 10 cases were taken up for analysis.

The average time span between admission and detection of the infection was found to be 7-10 days. All these cases are assumed to have contracted the infection during their hospital stay. Out of these 10 cases, 7 underwent Head and Neck Oncological surgeries like segmental mandibulectomy, flap repairs with either free flap or pedicle flap. 4 cases had taken neo-adjuvant chemotherapy (NACT) before the surgery. Most of them had Grade 1 and 2 Clavien Dindo post-surgery complications. Two cases died in the post-operative period (2/10 = 20%), one case being a Head and neck case with free flap repair and the other being a case of oesophageal cancer who underwent oesophagectomy. Both these cases were also post NACT.

Table 1 : The variables of these 10 cases are summarised below -

Case No.	Age/Sex	Primary site	Surgery	Post NACT	Associated comorbidities	COVID symptoms	Post-op period	Clavien Dindo Grade	1 month post surgery
1	39/M	Head-Neck	Composite oral resection with pedicle flap	Yes	None	Fever	Uneventful	I	Ongoing RT
2	50/F	Head-Neck	Caldwell Luc Biopsy	No	None	Fever	Uneventful	I	Ongoing Chemotherapy
3	50/M	Urogenital	Partial Penectomy with inguinal dissection	Yes	None	Fever	Wound gaping	II	RT postponed due to unhealthy wound

4	65/M	Thoracic	Oesophagectomy (VATS-TTE)	Yes	None	Fever, cough	Uneventful	IV	Death
5	65/F	Gastrointestinal	Hemicolectomy	No	None	Fever	Uneventful	I	Ongoing chemotherapy
6	62/M	Head-Neck	Composite oral resection with pedicle flap	No	None	Fever	Uneventful	I	Ongoing RT
7	47/F	Head-Neck	Composite oral resection with pedicle flap	No	Obesity	Fever	Wound gaping	II	Ongoing RTCT
8	52/M	Head-Neck	Composite oral resection with pedicle flap	No	None	Fever	Uneventful	I	Ongoing RT
9	49/M	Head-Neck	Wide oral resection with primary repair	No	Diabetes Mellitus	Fever	Uneventful	I	On Follow up
10	67/M	Head-Neck	Composite oral resection with free flap repair	Yes	None	Fever, weakness	Uneventful	IV	Death

DISCUSSION :

India is one of the worst hit countries to be affected by COVID-19 infection with more than 7.5 million cases till date and a mortality rate of 1.5%. Although cancer patients are considered to be high risk for getting affected with Covid-19, mortality in absence of surgery as a treatment modality, may far exceed the fatality due to COVID-19 infection in these patients. Decision to operate has to be hence balanced between the risk of Covid-19 and its complications following hospital admission and surgery and the benefits of curative cancer surgery (5,6).

Our institute, which is a tertiary cancer care centre in North-East India, has continued cancer surgeries even during the lockdown which was first imposed in India on 24th March, 2020. Initially, not all cases were routinely tested for COVID-19 pre-operatively, hence case selection for surgery included those not requiring morbid surgeries like simple wide excision, local flap repair, breast surgeries etc. From mid July, 2020, mandatory pre-operative RTPCR test was done for COVID-19 and all major resections were resumed.

A total of 299 cases were operated from 16th July, 2020 till 30th September, 2020, out of which 10 cases were detected with COVID-19 in the post-operative period. Although the number is small, it is imperative to analyse the factors which might increase the vulnerability of these patients to contract the infection post-surgery even though they were negative pre-operatively. Majority of these patients underwent composite resections in Head and Neck site with probable handling of aero digestive tract. Also, neo-adjuvant chemotherapy may have a role in compromising the immunity with 4 out of 10 cases receiving chemotherapy pre-operatively. Long hospital stay may also endanger the risk of contracting this infection as most hospitals have become COVID hotspots. Asymptomatic carriers (health workers/ attendants) have become a potential source of infection. One of the patients who died underwent video assisted trans thoracic oesophagectomy with probable handling of lung which may have compromised pulmonary function and thereby increased the vulnerability to this infection. Our analysis suggested that those with major resections where handling the aero digestive tract is an inevitable part of the procedure and patients having post NACT status may have an increased susceptibility to COVID-19 infection and hence have to be handled with extra caution.

CONCLUSION :

Patients with cancer are considered to be in the high risk group for developing severe form of COVID-19 infection and hence, cancer care has become a challenge during this pandemic. A subtle balance has to be maintained between the benefits of continuing cancer treatment and surgeries and the risk of the infection (5). Identification of the factors which might increase the vulnerability of these patients are important so that extra caution and care can be taken to protect them. We have attempted to analyse some factors which might pre-dispose the patients to this virus in the post-surgical period. Development of proper guidelines for continuing various elective cancer surgeries will also help in the long run. Ultimately, cancer care has to continue, even in the midst of the ongoing pandemic, with adequate availability of cancer care centres and specialists, for the greater benefit of our patients as we slowly learn to live with this virus.

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