

Care of haematology patients in a COVID-19 epidemic

The threat to health of the COVID-19 infection (caused by the novel zoonotic SARS-CoV-2 coronavirus) is now established.^{1,2} As widespread community transmission becomes likely, it is necessary to urgently consider the unique impact this may have on haematology patients and the practical steps that can be taken to reduce their risk during ongoing care. The importance of personal hygiene, the use of protective equipment and the investigation, isolation and treatment of infected patients are well documented elsewhere (<https://www.england.nhs.uk/ourwork/eprr/coronavirus/>), and are not discussed here.

From its emergence in China, the virus has spread to involve 100 000 confirmed cases across 82 countries as of 4th March 2020; there are currently 116 confirmed cases in the UK. Spread from symptomatic as well as asymptomatic patients leads to clusters of local outbreaks, and as community transmission increases, the current policy of contact tracing and containment will move to one designed to slow disease transmission. Without natural immunity in the population, isolation and quarantine will slow, rather than significantly reduce, the ultimate spread of disease. The proportion of the population likely to contract the virus during the outbreak is currently unknown. The UK Government's COVID-19 action plan is preparing for up to 80% of the population to become infected (<https://www.gov.uk/government/publications/coronavirus-action-plan>).

Initial large series of patients with confirmed COVID-19 infection have suggested a case fatality rate of between 1.4%³ and 2.3%² although estimates of this are complicated by factors likely to cause both over and under estimation of the true figure.

Cases of COVID-19 in those aged <20 years comprise around 2% of those infected, despite approximately 23% of the Chinese population being in this demographic.² Furthermore, if infected, deaths in this age group appear very rare. The disease has preponderance instead for adults, and especially the elderly and co-morbid. Patients aged >80 years are over-represented amongst diagnosed cases of the disease (3.2% of those diagnosed, despite making up 1.8% of the affected population)² It is unclear whether these age discrepancies reflect differences in infection rates, or whether they are due to detection bias, as older patients may be more likely to have symptoms and present for medical attention. The case fatality rate in the elderly is clearly increased however, being 14.8% in those aged >80 years, and 8% between 70 and 80 years. Given the immunosuppressive nature of most cancer therapies, it is expected that patients with cancer will be at higher risk of severe infection than the normal population. Data from China

show that patients with cancer have a statistically higher incidence of severe events (including intensive care unit admission/ventilation/death) after contracting the virus (39% vs. 8% in patients without cancer⁴). However, this was a small series of elderly patients and there are no data available yet on patients with haematological malignancies.

In responding to increased viral circulation in the population in a timely and proportionate manner, it is necessary to consider the risks to the patient of deviating from current standards of care (e.g. reducing chemotherapy intensity or frequency of phlebotomy) in an attempt to potentially reduce their risk of COVID-19 infection and its complications. Furthermore, it is possible that as an epidemic worsens, healthcare provision will be critically stretched, and therefore all activities that place further burden on those resources will have to be justified. For this reason, the delivery of treatments likely to increase immunosuppression, or increase the risk of intensive care support being required may not be possible in some healthcare settings.

There is therefore a need to consider the practical steps that can be taken, in the event of widespread community transmission, to reduce the risk to our vulnerable patient groups. The steps below aim to reduce the chances of patient exposure, and to consider reducing the degree of immunosuppression when possible. The following represent our own thoughts, rather than official guidance and we hope will act as a stimulus for the provision of official centralised recommendations from national bodies in the UK, in the now likely event of a global pandemic.

Communication and remote working

Contact details of all patients, including e-mail address and mobile telephone number, should be confirmed and strategies developed to enable rapid updates of the patient population en masse with the latest advice via e-mail and/or text. Patients should be advised that normal communication channels may be unavailable depending upon staff capacity.

Healthcare workers and administrators should be provided with Information Technology (IT) support to enable them to work remotely, such that they can continue to work if fit but self-isolating, or if not required to be on site.

Outpatient clinics

Self-isolation may enable patients to delay, or avoid, infection by COVID-19, and this may be of critical importance,

particularly following chemotherapy. As the number of cases in the community and hospitals rise, so will the risks to the patient of leaving their home to attend clinic appointments. Bringing potentially immunosuppressed, and often elderly, patients with cancer into this environment should be avoided where possible. Outpatient clinics should move to telephone appointments or video-conferencing arrangements wherever this is felt to be acceptable.

Patients attending in person could be asked to wait in their car until the clinician is available to see them, reducing their exposure to other patients.

Phlebotomy

Clustering large groups of vulnerable and potentially unwell patients into waiting areas for phlebotomy has the potential to facilitate the spread of the infection. Consideration should be given to extending the interval between monitoring blood tests, as the risks, and burdens on the health service of their provision increases.

The establishment of off-site phlebotomy facilities, e.g. in car parks, where patients can queue within their cars, would minimise their contact with other patients.

Supportive treatments delivered in a hospital setting

Routine, in hospital, provision of supportive treatments aimed at minimising longer term side-effects should be paused. Such treatments would include: the use of bisphosphonates to reduce skeletal-related events in patients with myeloma, venesection to reduce iron burden in patients after allogeneic transplant or in selected patients with erythrocytosis and hereditary haemochromatosis. Therapies that can easily be paused should be nationally agreed and circulated.

Maintenance and non-curative chemotherapy

Individualised decisions on the benefits and risks of continuation of maintenance chemotherapy will have to be taken if the infection rates in the community rise. The benefit of tight disease control should be balanced against the immunosuppressive effects of the treatment, and the theoretical increased risk of harm from COVID-19 that this may carry. Examples where treatment could be deferred may include maintenance rituximab in follicular and mantle cell lymphoma. Ideally, oral chemotherapy should be used where possible to avoid unnecessary hospital visits.

Curative chemotherapy

If pressures on hospitals increase, and rates of community infection climb, the balance in favour of delaying or abandoning cycles of chemotherapy will increase, to such an extent that, in the worst-case scenario, only immediately life-

saving chemotherapy may be considered. This problem may be exacerbated by potential absence due to illness amongst the pool of specialist nurses trained to deliver chemotherapy. Life-saving chemotherapy that will continue should be nationally agreed to ensure equity amongst patients.

Bone marrow transplantation

In the case of widespread community infection and substantial pressures on hospitals, it will be hard to justify the prolonged immunosuppression, close follow-up and additional demands on hospital services that come with performing allogeneic (and to a lesser extent, autologous) bone marrow transplants. In this scenario, it is plausible that many transplants will have to be deferred. It may be necessary to ration transplants, and arrange for transfer of patients to areas with sufficient capacity to support delivery and recovery from these regimes. Close liaison amongst the transplant community nationally will be vital.

The appropriate management and deferral of planned transplant recipients and donors who have had, or been exposed to, COVID-19 has been covered in pragmatic guidelines by the European Society for Blood and Bone Marrow Transplantation and will be updated as new evidence emerges (<https://www.ebmt.org/ebmt/news/ebmt-recommendation-coronavirus-disease-covid-19>).

Visitors

If community spread increases then relatives and friends should be discouraged from visiting inpatients, and from accompanying patients to clinic appointments; it may prove necessary to strictly enforce this.

Provision of medicines

Due to the global nature of this infection outbreak, it is possible that pathways of drug manufacture may be compromised, and shortages of medicines may develop. Co-ordination of response to this will require national oversight.

To reduce potential viral exposure at pharmacy departments, consideration should be given to the use of a drive-through medicine collection facility, where patients are alerted by telephone when their medicine is available. Some hospitals may alternatively choose a courier service.

Workforce

Hospitals should ensure that consideration is given to maintaining functional healthcare systems during periods of high workforce absence due to infection, and the potential consequences of disruption to schools and transport links. The UK Government has proposed drafting in volunteers, and recently retired medical personnel. It may prove necessary to re-deploy haematologists outside of their sub-speciality interest to maintain core services.

Summary

There is great uncertainty surrounding the burden that managing COVID-19 will place on global healthcare systems. It is prudent to plan for a scenario of maximal disruption, and consider how this would affect haematology patients, and the departments managing them, in the hope that many of the measures outlined may not need to be implemented.

Clear guidance and communication from governments and hospital leaders regarding COVID-19 will be essential. In addition, strong leadership within haematology teams nationally and locally will be needed to ensure timely and proportionate implementation of contingency plans, which balance risks and protect patients as infections rise.

Disclosures

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