

ICU experience of a Nigerian resident intensive care doctor on posting in United Kingdom at the height of First wave of COVID-19 Pandemic

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Abstract

Months into Covid-19 pandemic, United Kingdom(UK) became one of the epicenters of the disease. A lot of the critically ill patients ended up in Intensive care Units (ICU) around the country. As one of the doctors at the forefront of the pandemic, I would like to share my experience with the disease as an International fellow in the UK during this pandemic with a view to offering some suggestions on what can work in the developing country settings.

Key words: NIV, Intubations, CPAP, Nigerian, Resident doctor, Intensivist, Covid-19, ICU, Experience, International fellow, Prone

INTRODUCTION

Covid-19 pandemic as we know was first discovered in China in late 2019, but quickly spread all over the world within months giving rise to a worldwide pandemic that has gone ahead to infect millions and lead to death of hundreds of thousands. A lot of the disease burden is also being felt in the United Kingdom (UK) where I am currently engaged in an international training fellowship mainly in the intensive care. This article is to share my experience as a Nigerian Anaesthetist/ Intensivist Resident doctor in a critical care unit in a developed country.

Background

Intensive care unit is the place for the management of critically ill patients where level 2 and level 3 support is given to patients who meet the criteria for them. I was already on a posting in the Intensive care unit of Lancashire Teaching Hospital NHS Foundation Trust before the pandemic struck in the UK. The ICU's usual patient's disease presentations include neurosurgery cases, trauma cases, and respiratory cases, progressive neurological diseases, obstetrics and post operative cancer patients amongst others. With the onset of Covid-19, the cases drastically changed to reflect mainly Covid-19 patients more especially with the suspension of elective hospital admissions and restrictions placed on movement of UK residents. Being a novel disease, the treatment modality was being sought and it wasn't uncommon to see a recommendation come out only for another one to be issued within days.

General Experience

The experience I have gotten from this international fellowship is highly unquantifiable and will be highlighted under the following headings.

Funding - The UK has a national health service where the health system is basically public owned and supported with taxes from the residents. It means that health care delivery at the point of access is free and hence generally open to residents.

Critical Care set up - The critical care set up in the hospital just like most units in the hospital are independent with budget and funding ensuring the decisions they make are owned by the unit and hence allowing them to make progressive changes in areas of best service delivery provision to patients, staffing needs of the unit, the medication needed and able to make request for special required equipments as needed.

Staffing - This involves Consultants, tens of Trainee doctors, Nurses, Physiotherapist, Pharmacists, Nutritionists, Health care assistants, administrative and domestic staff all working in unison as a team with mutual respect for each other.

Criteria for admitting patients - In the unit although the decision to admit a patient may vary from consultant to consultant, generally patients are admitted if critical care support is likely to change a disease process and will be in his/her best interest. The country has done

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well to develop escalation plans and resuscitation criteria protocols while enlightening their populace on what this means.

Process of management of patients in ICU - The unit devised protocols for management of patient from drugs administered, to how to escalate management, to antibiotics administration, to appropriate fluids, to sedation drugs and vasoactive agents use amongst others. These have ensured uniformity of care and baseline for measurement of variables and audit of service provided to patients.

Covid Experience

The experience gained from this international fellowship programme will form a significant part of my clinical practice going forward. For the purpose of more understanding, I will split them into subunits as follows:

Decision to admit in ICU - Most patients with Covid-19 in the UK are asymptomatic and are mainly advised to self isolate at home and present to hospital if they have worsening symptoms. Even those that make it to the hospital are assessed at the A and E where triage is performed. If the patient has respiratory symptoms like breathlessness or has become hypoxic, the patient is usually admitted into the hospital under the respiratory unit for treatment and monitoring. Sometimes, patients are admitted straight from A and E to the intensive care unit if they are severely hypoxic and require some form of level 2 care (Non Invasive ventilation) or Invasive ventilation if they are appropriate candidates for it.

Ventilation - Our understanding of Covid-19 has kept on changing in the course of the pandemic. Initially, it was thought of as an Acute Respiratory Distress Syndrome (ARDS) and high peep was used. However with more understanding, it is now thought of as involving two stages in the disease process. There is a microvascular and an oxygenation one. The microvascular problem is the micro thrombosis thought to be due to an exaggerated body immune response, which can lead to early infarcts. There is also the component of being unable to oxygenate due to lack of exchange surface in the alveoli.

At the later stage, in those with poor compliance, ARDS protocol was to be used. The initial recommendation from early data obtained from Italy was that early intubation was better, but later observation suggested that there was high mortality for those patients that ended up on invasive ventilation. This led to policies to keep patients longer on non invasive ventilation (usually on a CPAP hood) for as long as possible.

Proning: Early proning was encouraged on all intubated patients as it helps in redistribution of perfusion leading to improved oxygenation. It was also encouraged for use in intubated patients with up to 70% of fiO_2 irrespective of the stage of the disease as long as there is still response to it. The concept of self-proning was also used in patients that are on non-invasive ventilation – CPAP (Continuous positive Airway Pressure) hood in ICU. This essentially means encouraging them to lie on their abdomen.

Specific treatments for the Virus: As the virus is a novel one, minimal reproducible studies have been performed on medications that work. I am participating in a number of research studies that might offer treatment modalities in the future like Recovery and REMAP CAP

in my center. As of the time of writing this paper, Dexamethasone has been found to be of benefit in reducing death in people requiring oxygen, as one of the outcomes of the Recovery trial.

Humidification: Before the onset of Covid-19, Intubated patients were placed on Wet circuits. Initially there were concerns regarding potential spread of infection with the continued use of wet circuits. However, it was decided to continue with wet circuits, in addition to use of HME as individual areas as people in those rooms are supposed to don Personal Protection Equipment (PPEs)

Sedation: With Covid-19 patients, it was found that despite being on maximal sedation, most times there were added breaths and patients not fully relaxed, therefore muscle relaxants as infusions were added to the sedation infusion protocols of propofol, midazolam and alfentanil to aid in complete paralysis in a bid to get the patient well relaxed and adequately ventilated to ensure adequate oxygenation.

Fluid balance: In the early stage of the disease, the patients are usually found to be dry due to low fluid intake at home. Also being placed in a CPAP hood, may exacerbate dryness of the patient. The recommendation was to keep the patient euvoletic to slightly dry. During the course of the disease, the kidneys might fail for a lot of these patients and usually require dialysis- almost daily. Of note is that removing excess fluid usually with dialysis when patient is in the recovery phase helps in weaning from ventilator.

Antibiotics: The use of antibiotics in the management of Covid-19 has evolved with initial continued use for community acquired Pneumonia and more recently to use only if bacterial infection is strongly suspected. The use of trend in Procalcitonin as a guide to antibiotics use was also adopted.

Nutrition: Use of NG feeding to ensure adequate calorie intake is maintained as applicable in normal ICU patients.

Thromboprophylaxis/Anticoagulation: The issue of giving therapeutic anticoagulation to Covid-19 patients was left to be decided on a case to case basis. The use of Low molecular weight heparin (LMWH), in addition to stockings and mechanical thromboprophylaxis continued to be used for all patients as a routine. If it was decided that a patient will benefit from therapeutic anticoagulation, the dose of LMWH is adjusted as deemed appropriate.

Lines - Insertion of Central venous catheter and any other line (for e.g. VASCATH) were done for all intubated patients immediately after intubation to help minimize exposure and enhance adequate resuscitation as required.

Extubation: The decision to extubate is usually taken by consultants on duty usually as a consensus. Before extubation, patients are usually placed on a 48hrs of dexamethaxone to help with airway edema present in these patients. A leak test is also done before deciding to remove the tube.

Re-intubation/tracheotomy: With failed extubation patients that had to be re-intubated and patients not yet appropriate for extubation, tracheotomies are usually planned for them. In our unit, this is usually percutaneous but can be surgical in cases where percutaneous tracheostomy is not feasible. The weaning process from the ventilator continues after tracheostomy.

CONCLUSION

I have tried to explain my experience during Covid-19 pandemic with small emphasis on what we did that worked. We can pick up some things from the management of these patients like self proning, outlining protocols for management of conditions and mutual team support as applicable. Although capacity issues in some centers in the developing world may hinder us practicing some of these, the area of self proning, outlining protocols from management of conditions specific to local centres and mutual team support can be adopted.

Recommendations

1. More provision of facilities by the government especially in the area of funding/ health insurance.
2. Adequate incentives for health care staff and provision of more training opportunities to improve morale.
3. Development of treatment protocols that we can own in our individual centers.

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