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Statistical Compilation

Interim Report on Patients with Coronavirus Disease 2019 (COVID-19) Admitted to a Psychiatric Hospital (Tokyo Metropolitan Matsuzawa Hospital)

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Abstract

From March 6, 2020 to May 9, 2020, Tokyo Metropolitan Matsuzawa Hospital admitted 73 patients with confirmed or suspected COVID-19 with a concomitant mental disorder were admitted to Tokyo Metropolitan Matsuzawa Hospital. As the number of individuals with COVID-19 increases in the general population, the number of patients with a psychiatric disorders who contract the disease is also likely to increase. The present report is the first to describe the healthcare system at the study center as of May 9, 2020, and includes an interim assessment of the characteristics of hospitalized patients with COVID-19 hospitalized there. Furthermore, some of the problems unique to patients with COVID-19 with the comorbidity of a concomitant mental disorder will be proposedare discussed as possible topics for future research.

Keywords：Coronavirus Disease 2019 (COVID-19), psychiatric and physical medicine, community psychiatric treatment, psychiatric emergency service

Introduction

Coronavirus Disease 2019 (COVID-19), caused by SARS-CoV-2, began its spread from Wuhan, China in the winter of 2019 to become a global pandemic in a matter of months. The first case of COVID-19 was confirmed in January 2020 in Japan. Thereafter, the infection rate increased sharply from late March and peaked in early April. Although the number of cases has been falling since then, the course of the pandemic remains uncertain. Tokyo Metropolitan Matsuzawa Hospital (TMMH) began admitting patients with suspected COVID-19 on March 6, 2020. The system was modified on April 1, 2020 to accommodate the increasing number of patients. By May 9, 2020, 73 patients with confirmed or suspected COVID-19 with coexisting psychiatric disorders were treated at TMMH. The present report is the first interim report of TMMH's COVID-19 treatment system and patients as of May 9, 2020 and includes suggestions for future countermeasures against COVID-19 in the psychiatric setting. The present study was approved by the Ethics Committee of Tokyo Metropolitan Matsuzawa Hospital (No. 6, FY2020).

I. System

1. TMMH's medical system

As of April 1, 2020, the hospital has 104 full-time physicians (65 psychiatrists, 23 physical medicine physicians, and 16 early trainees) and 540 nurses on staff who work at least four days a week. In response to the spread of COVID-19 in Tokyo, daily meetings have been held at 08:30 since March 30, 2020, with the head of each department (physicians, nurses, and administrators) reporting and making decisions pertaining to the admission status, treatment, medical resources, staff health, and education policies relevant to infection prevention. As of May 9, 2020, there have been no cases of nosocomial infection among our patients or healthcare workers (HCW). Mental health care for the HCW is provided in collaboration with on-site psychiatrists and industrial physicians. We believe that making correct information about COVID-19 available to all HCW involved in mental health care is crucially important to raising awareness about the disease and preventing infections. To this end, our physiatrists have been holding lectures on COVID-19 by on a regular basis.

2. Wards

The hospital contains 22 wards,

including three emergency wards, four acute care wards (including an adolescent ward), five social rehabilitation wards, two dementia wards, two psychiatric physical complications wards, a convalescent ward, a Medical Observation Law ward, a drug and alcohol addiction ward, a psychosis ward, a general ward, and an infectious diseases ward. The infectious diseases ward for patients with tuberculosis with coexisting psychiatric disorders is a closed ward, part of which has a negative pressure function and an anteroom where personal protective equipment (PPE) can be removed. The ward was previously staffed by 1.5 psychiatrists (one concurrently working in another ward) and two to four physical medicine physicians (concurrently working in another ward). The non-negative pressure area usually houses patients with psychiatric disorders without an infectious disease, but as of April 1, 2020, following the COVID-19 outbreak, these patients were transferred to other wards within the hospital to continue their inpatient treatment.

On April 1, 2020, the Infectious Disease Unit was set up as a dedicated ward for COVID-19 countermeasures in response to the nationwide increase in infections. The number of HCW was increased to three psychiatrists, four physical medicine physicians (concurrently working in other wards), and 15 nurses. A total area of 1,196.91m^2 (seven four-person beds and 17 one-person beds or 45 beds in total) was divided into three zones (Figure 1); 127.6 m^2 were allocated to the "confirmed cases area" (one four-person bed and ten single beds all in private rooms or 11 beds in total), 96.62 m^2 were allocated to the "suspected cases area" (three four-person beds in private rooms or three beds in total) capable of responding to both confirmed and suspected cases, and 38.33 m^2 were allocated to the "protection room area" (four single-patient beds in private rooms for a total of four beds). Further, for patients referred to TMMH from the Tokyo Metropolitan Government's Bureau of Social Welfare and Public Health's emergency psychiatry project and patients with marked psychomotor agitation who were difficult to manage in the protection room area, an additional protection room (containing four beds) was created in one of the three emergency wards. The areas with an anteroom for PPE removal now contained 30 beds (14 beds in the protection room). All the beds were housed in private rooms, and all the staff wore PPE (N95 mask, gown, face shield, and gloves) when treating patients with confirmed or suspected COVID-19.

TMMH has stockpiled 460 N95 masks,

5,400 surgical masks, 430 gowns, 60 face shields, and 38,200 gloves. As of April 1, 2020, it has become mandatory for all HCW to wear a surgical mask as basic PPE and to practice the standard precautionary measures. As a result of an anticipated shortage of supplies, all the HCW are required to use two surgical masks per week, and each HCW on a ward was assigned one N95 mask per week. Between March 6 and May 9, 2020, 7,080 N95 masks, 146,150 surgical masks, 12,510 gowns, and 2,418 face shields were distributed by the Tokyo Metropolitan Government and the Ministry of Health, Labour and Welfare or purchased by the hospital. Between March 6 and May 9, 2020, 610 N95 masks, 7,100 surgical masks, 4,500 gowns, 311 face shields, and 66,300 gloves were used.

For patients with suspected COVID-19, the area of PPE use was adjusted according to the type of treatment being administered. Figure 2 shows how to deal with a suspected COVID-19 patient and how the room was zoned. When treating patients with suspected COVID-19, HCW used the same PPE as in the examination unless other infections were suspected. However, only the gloves were changed for each patient. Physicians and nurses were not assigned exclusively to one area but provided medical care in all areas. Patients with suspected COVID-19 were defined as those judged by the physical medicine physician to have the disease based on the presence of a fever or respiratory symptoms. A PCR test using a pharyngeal swab and the results of clinical evaluation were used to confirm or deny a suspected infection. After an observation period of at least 14 days, if the patient had no fever, respiratory symptoms or other signs of COVID-19, the patient was transferred to another ward if necessary. No patients newly admitted after April 2020 were suspected of having COVID-19 after the 14-day observation period. There were also no patients with suspected COVID-19 after 14 days of follow-up, and no patients acquired COVID-19 during hospitalization after having previously tested negative.

3. Outpatient care system

All patients visiting TMMH were triaged at the entrance. Their temperature was taken, and if they had a fever or a strong index of suspicion for COVID-19, they were admitted into the hospital via a separate route, with flow lines for examination and admission in place to prevent contact with other patients. Patients with COVID-19 were examined in the outpatient negative pressure examination room as "febrile outpatients" by a physical medicine physician first, and a decision was made as to whether or not to treat them as

patients with suspected COVID-19. HCW wore PPE while treating all these patients.

4. Radiology

Radiological examinations, such as CT and X-ray examinations, were performed in a ventilated laboratory for all patients with confirmed or suspected COVID-19, and after each examination, the laboratory was thoroughly ventilated and disinfected with alcohol.

II. Clinical characteristics of the patients

No other medical institutions in Tokyo accept patients with mental illness with a confirmed diagnosis of COVID-19 or suspected mental illness with COVID-19. Therefore, in early April 2020, in an agreement with the Tokyo Metropolitan Government, it was announced to the healthcare facilities in Tokyo that TMMH would accept inpatients from other psychiatric institutions and patients with dementia in government housing facilities who were newly diagnosed with COVID-19. All the patients who requested hospitalization during the study period were Tokyo residents, inpatients in a Tokyo hospital or patients under medical protection in Tokyo.

Between March 6 and May 9, 2020, 73 patients comprising both inpatients and outpatients with confirmed or suspected COVID-19 were treated at TMMH. Their mean age was 60 years (±22 years; range: 18 – 91 years). Of these 73 patients, eight were admitted as general inpatients, five were voluntary hospitalizations, 53 were admitted for medical protection, six were hospitalized to receive an emergency procedure, and one was hospitalized under the Medical Observation Law.

Furthermore, of the 73 patients, 21 had hospital-acquired COVID-19, 17 were TMMH outpatients, 18 were new psychiatric patients, 14 were transferred from the psychiatric department of other hospitals, and three were transferred from the physical medicine department of other hospitals. Of the total, the Tokyo Metropolitan Government Bureau of Social Welfare and Public Health, the Tokyo Metropolitan Government Bureau of Social Welfare and Public Health, other public health centers, and general hospitals with psychiatric departments requested the admission of six patients for psychiatric emergency treatment, two patients with COVID-19, nine patients, and three patients, respectively. Sixty-nine of the 73 patients were Japanese, two were of other Asian descent, one was African, and one was from Oceania. The table shows the psychiatric diseases in the 73 patients.

Figure 3 shows the number of days of TMMH's COVID-19 response during which PPE was used while treating each of the 73 patients with suspected COVID-19.

Of the 73 patients, ten patients received a definitive diagnosis of COVID-19. Their mean age was 77 years (±18 years; range: 27 – 91 years), and all were hospitalized for medical protection and were Japanese citizens. Nine of the patients had a psychiatric diagnosis of F0 (dementia) and one had a diagnosis of F7 (mental retardation). Physical restraint was required for seven of the ten patients, and isolation was required for three patients.

III. Problems in administering treatment

The challenges of providing psychiatric care while treating COVID-19 are described below.

1. Issues in providing psychiatric care with PPE

PPE masked the facial features and covered the name plate, etc., rendering the patients' recognition of the HCW difficult. When the HCWs' voice is the only way in which the patients are able to identify them, rapport building can be difficult. Therefore, HCW made an effort to give patients a sense of security and rapport by identifying themselves and their job title on each occasion and being supportive. A certain amount of discomfort to the patient was unavoidable in this situation. HCW experienced daily the difficulty of managing mentally ill patients while protecting against infection. The higher the risk of violent behavior, the greater was the need for a large number of staff members to be involved simultaneously in the patients' treatment, and the greater was the risk of infection among the HCW via increased exposure to droplets and aerosols and potential displacement of PPE. The greater frequency of medical examinations required when a patient is under restraint also increases the risk of infection. In these cases, the consumption of PPE also rises as a result of frequent use and replacement.

2. Problems pertaining to the decline of activities of daily living (ADL) in patients with confirmed/suspected COVID-19

In order to manage patients in a private room, behavioral restrictions are very frequently employed in patients with restlessness or unstable ambulatory status. To prevent a decline in ADL, behavioral restrictions are now being eased during mealtimes for patients with confirmed COVID-19 who are not suspected of having any other infection. These patients are allowed to join other

patients in the hospital dining hall while maintaining a social distance of 2 m or more. Rehabilitation by physiotherapists to prevent infection is also currently being considered as a COVID-19 countermeasure.

3. Issues in the treatment of patients with confirmed COVID-19

In treating patients with confirmed COVID-19, laboratory tests, including imaging tests, were performed whenever appropriate, and the patients were placed under observation. The maximum length of hospital stay (LOS) for patients with COVID-19 is 31 days, and as of May 9, 2020, no patients with COVID-19 have been discharged. The LOS and treatment may be longer in patients with psychiatric disorders than in non-psychiatric patients with COVID-19 (mean LOS: 14.3 days (±5.2) according to the National Institute of Infectious Diseases 1), but further investigation is required for verification. However, the National Institute of Infectious Diseases (NIAID) report included only patients with a definite discharge date whereas the present report included only ten patients with a definite diagnosis of COVID-19, none of whom were discharged.

Of the ten patients with a confirmed diagnosis, one with mental retardation and four with dementia contracted COVID-19 in a residential facility, and the remaining five were living at home. All had dementia. Of the five patients who were living at home before admission, two were living alone, and two were living with their spouse. Some of the patients had family members with disabilities and were already facing challenges in their daily life; thus, the longer they were hospitalized, greater was their need for intensive social work after discharge. In many cases, patients transferred or referred from other healthcare centers required treatment and observation in the psychiatric ward owing to the lack of the necessary care at the previous facility.

No family visits were allowed during the patients' hospitalization. Instead, their condition and other details were explained to their family by telephone several times a week. If requested by the patients or their family, opportunities for interaction were provided using remote conferencing tools via the Internet (such as Zoom) during the usual visiting hours.

4. Problems in treating patients with suspected COVID-19

As a rule, all cases of suspected COVID-19 were treated as if they were confirmed cases. However, amid the persistent denial by some patients with suspected COVID-19 that they were in fact positive, some HCW occasionally found it difficult to continue performing

the standard anti-infection measures. To counter the temptation fostered by the belief that some patients may not in fact be positive to lower their vigilance against infection, the staff were reminded not to omit any of the infection control measures.

IV. Issues with the system

TMMH has been providing psychiatric care for patients with acute psychiatric and physical complications in cooperation with the local community. On the emergence of COVID-19, TMMH was able to establish a system quickly to deal with the increasing number of cases, as shown in Figure 3.

Few hospitals are able to admit patients with psychiatric comorbidities during the outbreak of a new infectious disease. One of the factors hindering access to appropriate medical care is the discrimination faced by many patients with a mental illness. A report from China3) noted that discrimination against mental illness in the medical setting can hinder prompt access to medical care by mentally ill patients with COVID-19. As the number of patients with COVID-19 swells, there is a mounting need to revamp and expand the admission system for patients with COVID-19 with psychiatric comorbidities. In the short term, increasing general hospitals' admission of patients with coexisting psychiatric disorders is desirable. In the long term, enhancing the medical care system for patients with a psychiatric complication is necessary.

Conclusion

A report from China2) pointed out the difficulty of implementing COVID-19 infection control measures for patients admitted to psychiatric hospitals. However, TMMH promptly admitted patients with suspected COVID-19 from multiple psychiatric hospitals as part of the city-wide effort to contain infections. Although many of the newly admitted patients were negative for COVID-19, prompt admission of patients with suspected COVID-19 from other psychiatric hospitals provided much-needed treatment that was unavailable at the previous hospital and contributed to preventing the collapse of the community mental healthcare system. Currently, new cases are emerging in elderly citizens' and disabled persons' housing facilities. Improved collaboration between such facilities and healthcare centers is therefore much to be desired.

Disclosures

There are no conflicts of interest related to this study to be disclosed.

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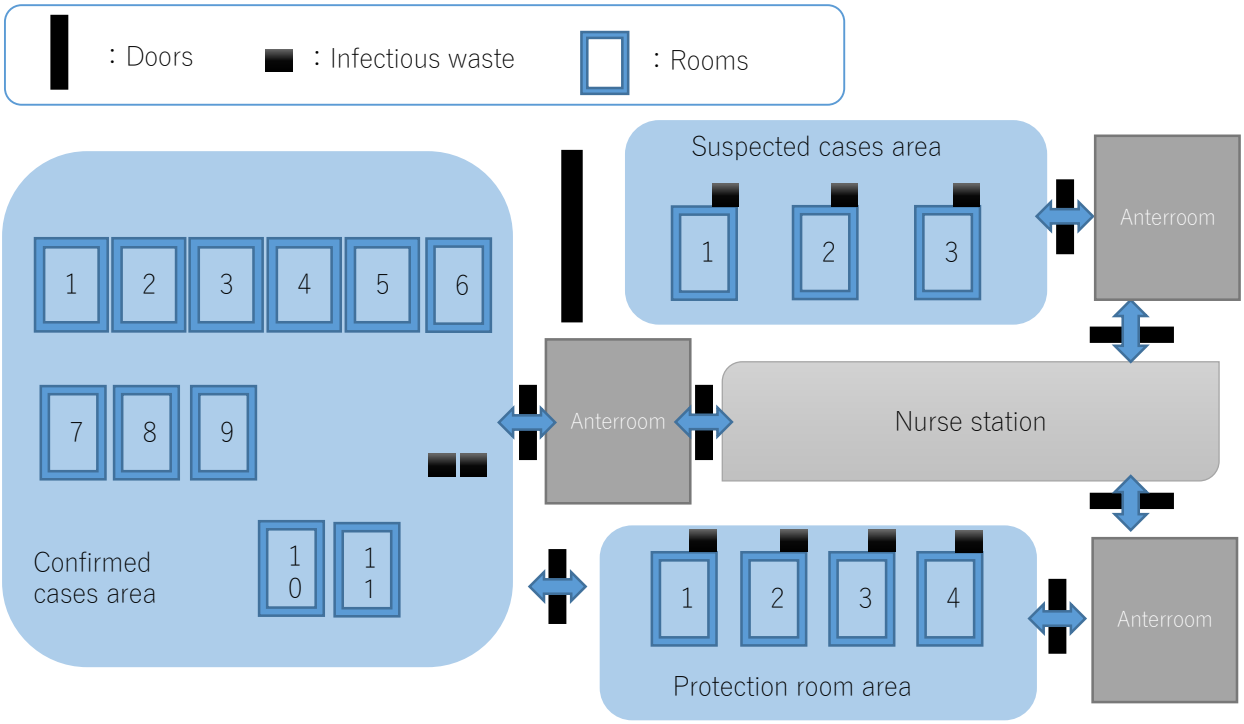

Fig.1 The Infectious Disease Unit was divided into three zones

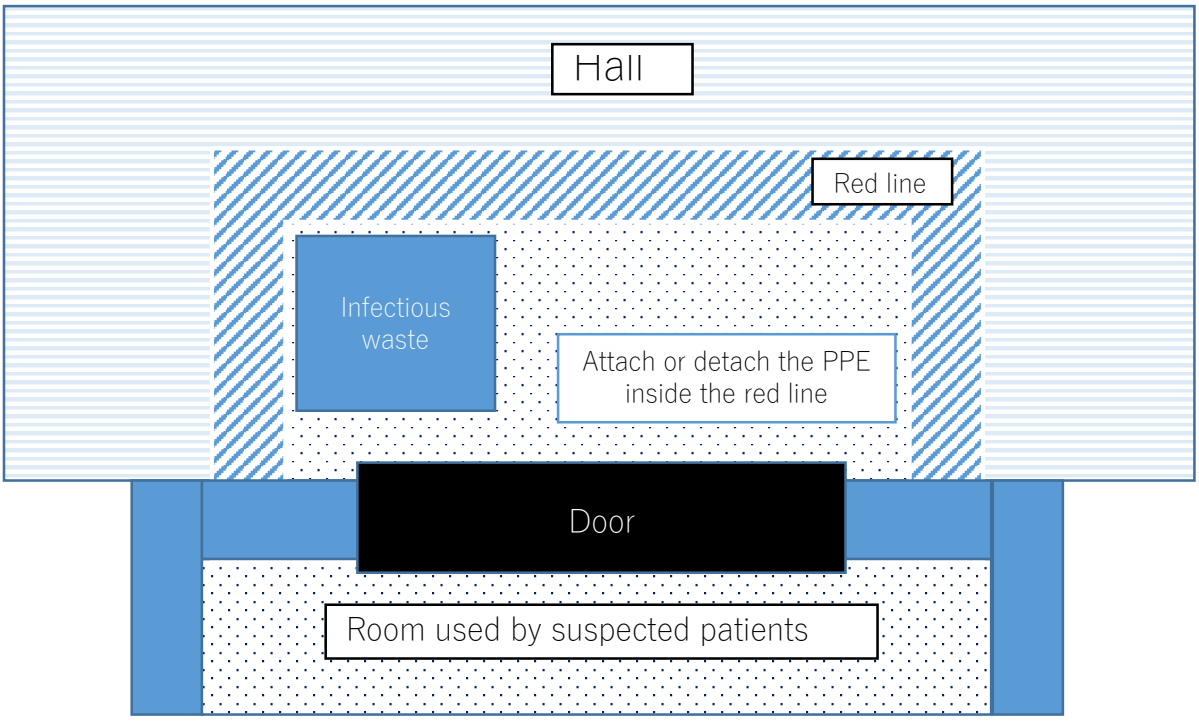

Fig.2 How the room used by suspected patients was zoned

table: Psychiatric diagnosis of patients with confirmed/suspected COVID-19

Psychiatric diagnosis (ICD-10)	Number of people
F0	23
F1	5
F2	25
F3	9
F4	0
F5	1
F6	1
F7	8
F8	0
F9	0
People without a psychiatric diagnosis	1

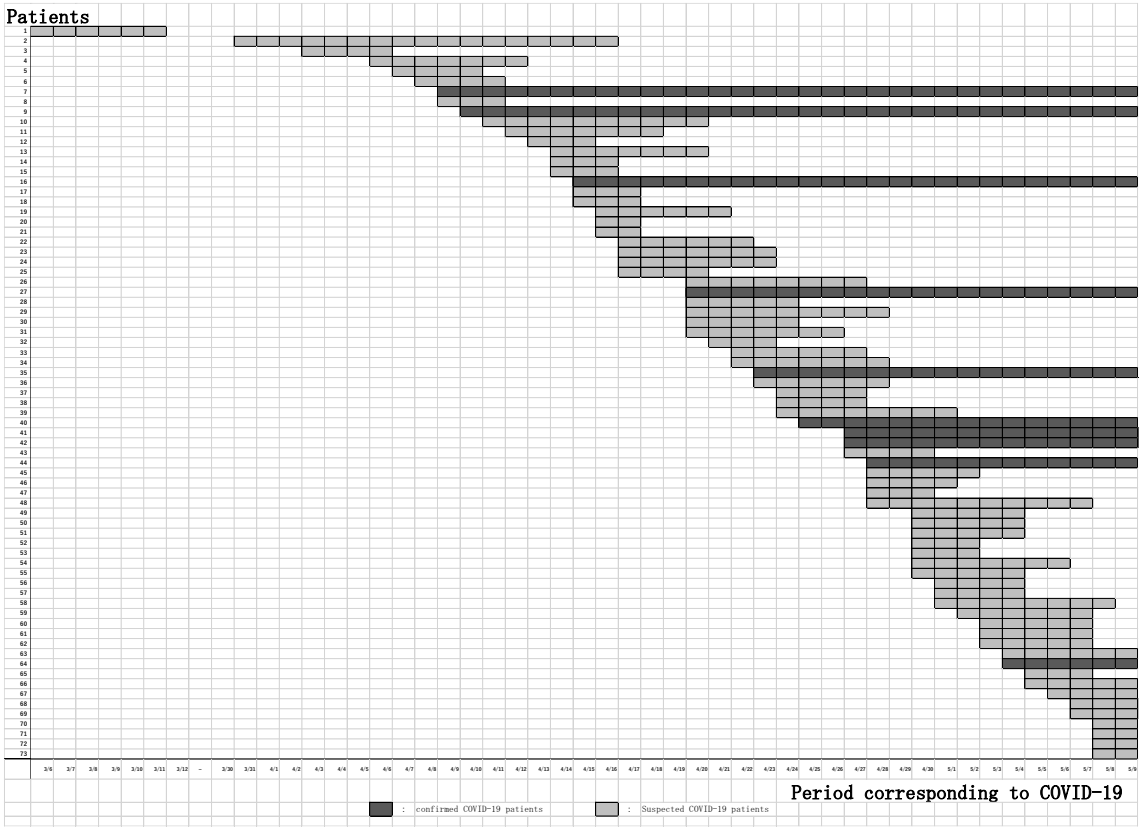

Fig.3 The number of days of TMMH's COVID-19 response during which PPE was used while treating each of the 73 patients with suspected COVID-19