Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations

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In December 2019, cases of life-threatening pneumonia were reported in Wuhan, China. A novel coronavirus (2019-nCoV) was identified as the source of infection. The number of reported cases has rapidly increased in Wuhan as well as other Chinese cities. The virus has also been identified in other parts of the world. On 30 January 2020, the World Health Organization (WHO) declared this disease a 'public health emergency of international concern.' As of 3 February 2020, the Chinese government had reported 17 205 confirmed cases in Mainland China, and the WHO had reported 146 confirmed cases in 23 countries outside China.[1] The virus has not been contained within Wuhan, and other major cities in China are likely to experience localized outbreaks. Foreign cities with close transport links to China could also become outbreak epicenters without careful public health interventions.[2]

In Japan, economic impacts and social disruptions have been reported. Several Japanese individuals who were on Japanese-government-chartered airplanes from Wuhan to Japan were reported as coronavirus-positive. Also, human-to-human transmission was confirmed in Nara Prefecture on 28 January 2020. Since then, the public has shown anxiety-related behaviors and there has been a significant shortage of masks and antiseptics in drug stores.[3] The economic impact has been substantial. Stock prices have dropped in China and Japan, and other parts of the world are also showing some synchronous decline. As of 3 February 2020, no one had died directly from coronavirus infection in Japan. Tragically, however, a 37-year-old government worker who had been in charge of isolated returnees died from apparent suicide.[4]

This is not the first time that the Japanese people have experienced imperceptible-agent emergencies – often dubbed as 'CBRNE' (i.e., chemical, biological, radiological, nuclear, and high-yield explosives). Japan has endured two atomic bombings in 1945, the sarin gas attacks in 1995, the H1N1 influenza pandemic in 2009, and the Fukushima nuclear accident in 2011: all of which carried fear and risk associated with unseen agents. All of these events provoked social disruption.[5,6] Overwhelming and sensational news headlines and images added anxiety and fear to these situations and fostered rumors and hyped information as individuals filled in the absence of information with rumors. The affected people were subject to societal rejection, discrimination, and stigmatization. Fukushima survivors tend to attribute physical changes to the event (regardless of actual exposure) and have decreased perceived health, which is associated with decreased life expectancy.[7,8]

Fear of the unknown raises anxiety levels in healthy individuals as well as those with preexisting mental health conditions. For example, studies of the 2001 anthrax letter attacks in the USA showed long-term mental health adversities as well as lowered health perception of the infected employees and responders.[9] Public fear manifests as discrimination, stigmatization, and scapegoating of specific populations, authorities, and scientists.[10]

As we write this letter, the coronavirus emergency is rapidly evolving. Nonetheless, we can more or less predict expected mental/physical health consequences and the most vulnerable populations. First, peoples' emotional responses will likely include extreme fear and uncertainty. Moreover, negative societal behaviors will be often driven by fear and distorted perceptions of risk. These experiences might evolve to include a broad range of public mental health concerns, including distress reactions (insomnia, anger, extreme fear of illness even in those not exposed), health risk behaviors (increased use of alcohol and tobacco, social isolation), mental health disorders (post-traumatic stress disorder, anxiety disorders, depression, somatization), and lowered perceived health. It is essential for mental health professionals to provide necessary support to those exposed and to those who deliver care. Second, particular effort must be directed to vulnerable populations, which include: (i) the infected and ill patients, their families, and colleagues; (ii) Chinese individuals and communities; (iii) individuals with pre-existing mental/physical conditions; and, last but not least, (iv) health-care and aid workers, especially nurses and physicians working directly with ill or quarantined persons. If nothing else, the death of the government quarantine worker must remind us to recognize the extent of psychological stress associated with imperceptible agent emergencies and to give paramount weight to the integrity and rights of vulnerable populations.

Disclosure statement

The authors declare no conflicts of interest.

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Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

File S1 Online health information sources for the novel coronavirus (2019-nCoV).

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Slower titration of lamotrigine reduces the risk of rash

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Lamotrigine (LTG) is widely used for epilepsy and bipolar disorder.[1] However, there are risks of LTG-induced skin rash. The titration speed differs depending on the combination of drugs that enhance or inhibit LTG's metabolic enzyme.[2] Some risk factors have been noted, but in clinical practice, the greatest risk factors have not been precisely elucidated. Therefore, we retrospectively reviewed our clinical records to assess the risk of LTG-induced skin rash.

Between December 2008 and September 2015, 309 patients who had taken LTG were recruited at Dokkyo Medical University Hospital. The patients were diagnosed according to the DSM-IV-TR criteria: 109 as bipolar and related disorders, 145 as depressive disorders, and 55 as epilepsy.

The schedule followed the recommendations concerning the standard titration. In this study, the slow group was defined by a slower titration than the recommended. The evaluation period was within 8 weeks because rash often occurs within this time period.[3] The low-initial-dose group was defined by a lower first dose than the standard. Regarding the other factors, we evaluated combined drugs (equivalents of antipsychotics, antidepressants, benzodiazepine, antiparkinson drugs, and valproate, carbamazepine, and lithium), age, sex, and diagnosis. This was a retrospective cross-sectional study of patient medical records. We collected the data from the clinical records after approval was obtained from the institutional review boards of Dokkyo Medical University School of Medicine. In our approved method, written informed consent was not provided by the participants but we obtained the consent with an opt-out system. To anonymize the clinical records that were used in this study, the information that could identify an individual was not prepared. As all participants spontaneously consented to hospital treatment, none had a compromised capacity to consent.

Whether a patient had an LTG-induced rash was judged based on the doctor's description in the medical record. According to the medical records, the participant was categorized as a rash-positive patient when the doctor decided to cease LTG treatment because of rash.

A logistic regression analysis was applied to examine the risk factors for rash. The factors above were included in the logistic regression model. All *P*-values reported were two-tailed. Statistical significance was considered when the *P*-values were less than 0.05.

A total of 17 patients (5.5%) had an initial dose that was higher than the standard, and 90 patients (29.1%) had an initial dose that was lower than the standard. Regarding titration, 30 patients (9.7%) had a more rapid titration and 195 patients (63.1%) had a slower titration. Of the patients who were prescribed LTG, a rash occurred in 13.3% of patients and one patient was diagnosed as having Stevens–Johnson syndrome. However, the rash in other patients was not severe in nature. Of the 195 patients who had slow titration, rash occurred in 15 (7.7%). On the contrary, rashes occurred in 23 (27.4%) of the 84 patients who received standard titration. We analyzed the relationship between rash occurrence and age, sex, diagnosis, titration speed, initial dose of LTG, benzodiazepine dose (diazepam equivalent), antidepressant dose (imipramine equivalent), antipsychotic dose (chlorpromazine equivalent), antiparkinson drug dose (biperiden equivalent), lithium dose, valproic acid dose, and carbamazepine dose. A logistic regression analysis indicated that slow LTG titration was the only factor that was significantly related to low rash occurrence (Table 1a). In a sequential analysis, the subjects whose initial LTG dose was higher or whose LTG titration speed was faster were excluded. Thirty patients had rapid titration, 17 had a higher initial dose, and one patient had both. This analysis also revealed that slower LTG titration was preferred to prevent rash occurrence (Table 1b).

Our methodology has several limitations. First, there might be false positives for LTG-induced rash. In fact, the rate of a benign LTG-induced rash is 10% and the rate of severe rash is rare.[4] However, the same situation might happen in clinical practice. Patients sometimes decide to self-discontinue their medication before the next visit without a doctor's judgment. This judgment may be false but could be safer as it is difficult to distinguish a severe rash from a benign rash. Second, out of the 30 patients with rapid titration, rash occurred in only three patients (10.0%). However, we could not conclude that rapid titration was safe for LTG because the sample size was very small. Furthermore, additional studies are required to clarify these risk factors. Finally, the patients' data did not include details regarding their liver and kidney function. Hence, our results might be influenced by these factors, a fact that was not considered in this study.

We investigated the risk factors for skin rash due to LTG administration in a real clinical setting. Slower titration than the standard recommendation indicated a significantly lower risk of rash induced by LTG. Therefore, we recommend that LTG titration should be slower to reduce rash incidence.

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Table 1. Correlation between each factor and LTG-induced rash

(a) Total patients

	OR	95%CI	Wald	*P*
Age	1.00	0.98–1.02	0.42	0.51
Sex	1.32	0.61–2.86	0.50	0.47
Diagnosis	1.38	0.79–2.40	1.30	0.25
Benzodiazepine (Eq)	0.98	0.97–1.00	1.95	0.16
Antidepressants (Eq)	1.00	0.99–1.00	0.04	0.83
Antipsychotics (Eq)	1.00	0.99–1.00	0.01	0.91
Antiparkinson drugs (Eq)	1.26	0.75–2.10	0.79	0.37
Lithium (mg)	0.99	0.99–1.00	2.40	0.12
Valproate (mg)	1.00	0.99–1.00	0.21	0.64
Carbamazepine (mg)	1.00	0.99–1.00	0.21	0.64
Low initial dose of LTG	0.52	0.21–1.30	1.89	0.17
Slow titration of LTG	0.30	0.14–0.61	10.74	<0.01*

(b) Patients except more initial dose and rapid titration of LTG

	OR	95%CI	Wald	*P*
Age	1.00	0.98–1.03	0.25	0.61
Sex	1.36	0.58–3.16	0.52	0.46
Diagnosis	1.56	0.85–2.88	2.09	0.14
Benzodiazepine (Eq)	0.99	0.97–1.01	0.92	0.33
Antidepressants (Eq)	0.99	0.99–1.00	0.34	0.55
Antipsychotics (Eq)	1.00	0.99–1.00	0.00	0.94
Antiparkinson drugs (Eq)	1.77	0.89–3.52	2.71	0.09
Lithium (mg)	0.99	0.99–1.00	2.60	0.10
Valproate (mg)	1.00	0.99–1.00	0.02	0.86
Carbamazepine (mg)	0.99	0.99–1.00	0.47	0.49
Low initial LTG dose	0.23	0.13–1.01	3.76	0.05
Slow LTG titration	1.56	0.11–0.50	13.62	<0.01*

*$P < 0.05$. CI, confidence interval; Eq, equivalent; LTG, OR, odds ratio; Wald, Wald test.