Classical Drug and its New Role in COVID-19 Management

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COVID-19 is the new emerging viral infection that already cause global public health problem [1-3]. More than 220 countries/territories are already attacked and there are more than 17 million patients around the world. This disease was firstly reported in China then in Indochina and extended worldwide. The patient can have febrile respiratory illness and there are many asymptomatic and mild symptomatic cases. The new viral respiratory infection causes several medical and non-medical problems and it is a big challenge to be managed. As a new disease, the knowledge on diagnosis and management is limited. At present, there is still no gold standard therapeutic regimen for managing COVID-19. The treatment has to depend on symptomatic and supportive treatment. The high mortality rate of this disease is reported and it leads to the urgent need to find new therapeutic method to manage the infection. The ongoing researches and developments for finding new drug against the pathogenic virus is the hope for success in disease containment [4]. Nevertheless, it usually takes a very long time to find a new drug for management of a new emerging disease. Additionally, COVID-19 is a new viral disease, finding the effective drug is usually difficult. Seeking a new alternative prodrug for further development has to take a long time and it might be in time for managing the present outbreak crisis. Therefore, the ideas for seeking new drug from classic drugs is very interesting.

An interesting attempt is the use of available drugs for managing of the infection. Several classic drugs have been tested for management of the disease. There are many reports on using classical drugs for management of the infection. Available antiviral drug is the important group that is widely tested. Antiviral drug was earlier proposed than other groups of classic drugs since COVID-19 is a viral infection [5]. Antiretroviral drug is reported for its possible usefulness in the management of disease [6]. The standard antiretroviral drug for HIV patient is the

drug that is usually proposed for its efficacy in COVID-19. Nevertheless, based on the mathematical model study, the use of the drug has to adjust by increasing the dose of the antiretroviral drug [7]. Focusing on anti-influenza drug, it is not proposed for its role in the case of COVID-19 [8,9]. Therefore, the use of standard influenza management cannot result in successful management of COVID-19.

Additionally, the well-known antimalarial drug, chloroquine and hydroxychloroquine, is also proposed for possible role in management of the virus infection [10]. The observation on the lack of infection in the systematic lupus erythrematosus (SLE) patient who on regular hydroxychloroquine is the basic observation leading to the ideas that the classic hydroxychloroquine might be useful for managing COVID-19 [11]. Regarding antibiotics, some drugs are proposed for its possible role. The good example is doxycycline [12,13]. Also, the antifungal drug is also proposed for its possible role for disease management [14]. The classic drug that is not used for managing infection is also proposed for its possible role in managing COVID-19. The antipsychiatric drug is proposed for its advantage. Clozapine and chlorpromazine are the good examples [15,16]. Steroid, the classical drug, is also proposed for its role in managing server infection [17]. The use of steroid is mentioned for its advantage in managing cytokine storm problem caused by COVID-19. The action of steroid is due to anti-inflammatory action.

The role of classic drug is basically proposed based on its known pharmacological action. The consideration on detailed pharmacological mechanisms of the classic drug leads to the ideas for application for managing COVID-19. The comparison by biological pathway analysis or expression analysis via pharmacological informatics approach can help identify possible new alternative drugs for managing COVID-19. This pharmacological informatics approach is also helpful and applicable in searching drugs from

alternative medicine regimens [18]. The pharmacological pathway comparison seems to be the useful new concept for searching new anti-COVID-19 drug from well-known classic drugs. However, the comparison can give only a clue that a classic drug might be applicable. It still requires standard clinical studies to verify that proposed possibility for managing COVID-19. Nevertheless, using the old classic drug might be safer than using of newly developed drug or other aggressive approaches. Classic drug usually has many details on its safety and adverse effect. If it is selected for managing COVID-19 patient, the practitioner can have a draft way to follow the possible adverse effect. For example, if hydroxychloroquine is used, the follow—up for hemolysis is required and screening for glucose-6-phosphate dehydrogenase deficiency is needed [19,20]. This is considered safer than using other more risk method such as using convalescent plasma therapy [21].

Conflict of Interest

None.

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