



EDITORIAL

Applied Medical Mathematical Modelling Technique for Epidemiology Approach for New Emerging Infection

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Infection is the common pathology in medicine. The new emerging infection is the present problem worldwide. Within the past few years, there are several new emerging infections. The diseases are usually problematic and need good management and control. The new disease is usually problematic due to lack of data on the way for proper diagnosis and treatment. The emerging infection epidemiology is very interesting and it is a common issue to be discussed when there is a new emerging infectious disease. The basic requirement is the disease monitoring and surveillance [1]. The epidemiological approach is needed and this must be the basic requirement regarding any new emerging infection situation. The epidemiology data to be collected include the data on time, place and person. The interrelationship between those basic parameters is also required. A good data collection and record is the basic requirement in clinical epidemiology that might help the others able to make use of the accumulated collected data. To perform an epidemiology study on the new emerging infection, practitioner requires the knowledge on clinical epidemiology. The data collection and recording are common routine practice for epidemiological surveillance on the new emerging disease. The collected data can be useful for further analysis. A challenging issue is how to use the collected data from the epidemiological surveillance. The applied of new biomedical science technology and concept is the basic way for making use of those collected data. Several new biotechnologies as well as computer IT tools can be applied for this purposed. Nevertheless, a basic important classical technique that should not be forgotten is the clinical mathematical

modelling. Indeed, mathematical modelling can be used for explained any situation including to the medical scenario. The use of clinical mathematical modelling technique for describing on the situation of a new emerging infectious disease is feasible [2]. This is an actual new clinical epidemiological technique that makes use of basic mathematical approach. Using mathematical model, the clarification of disease outbreak pattern as well as prediction of extension of the problem can be derived. In addition, with use of complex mathematical modelling technique, the term of disease spreading, velocity and acceleration might be calculated. That mentioned calculation can be simply done based on the concept of basic calculus. The basic required parameters are the basic epidemiological parameters such as number of case, place data and time data. Differential and integral equations can be written to explain the situation and this is usually specific equations in different settings. In addition, the simulation of the situation of the emerging infectious disease can also be tested based on the clinical mathematical modelling. This will be helpful for expectation on the possible situation of epidemic. Applying this technique, the practitioner can forecast the future trend of the disease spreading and can design the corresponding management measures. Nevertheless, the basic clinical mathematical modelling is also the fundamental to support other novel technique approach. The performance of the new mathematical model can be tested and reconfirmed by the observed actual epidemiological data. The good example is the application for construction of the GIS model representing the new emerging infection [3]. The predictive model can be the



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basic tool for planning for preventive measures of possible problem in the identified risk site and period. In the present situation of worldwide outbreaks of Zika virus infection, the new emerging arbovirus infection, there are many good examples of clinical mathematical modelling for clarification and prediction purpose of the outbreak [4]. Those reports can be useful and we can use the data as the lesson learnt for further application of the technique in correspondence to any new emergence of new unknown infectious disease.

Conflict of Interest

None.

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