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BIG DATA IN MEDICINE: THE PRESENT CLINICAL APPLICATION

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ABSTRACT

Big data is the present interesting concern in data management. In medicine, big data management is also the new issue and challenge. In this short chapter, the author summarizes and discusses on important big data related clinical applications in medicine. It can be seen that the management of big data is useful in modern medicine.

KEYWORDS: Big Data, Medicine, Application, Management.

INTRODUCTION

Data is an important basic requirement for any works. Big data is data sets that have a very large voluminous and is very complex that traditional data processing application software are inadequate to deal with those data. Big data is the present interesting concern in data management. In medicine, big data management is also the new issue and challenge. In this short chapter, the author summarizes and discusses on important big data related clinical applications in medicine. It can be seen that the management of big data is useful in modern medicine.

BIG DATA IN NEUROLOGY

Neurology is the specific subject in medicine that deals with neurological system. There are many new interesting reports regarding big data in neurology. The use of big data management concept is already applied for management of data on neuroimaging [1]. In addition, the big data management is also applied for the clarification of the complex neurodegeneration disease by tracing back to the heap of relating genetic data [2]. This is helpful to support manipulation of the increased influx of genomic data in the present post genomic omics science era [2]. Some interesting reports on applied big data management in clinical neurology are shown in Table 1.

BIG DATA IN CRITICAL CARE MEDICINE

Similar to neurology, the use of big data management can be useful in critical care medicine [9]. Zelechower et al. noted that "*Together with the infrastructure, the conformation of a multidisciplinary team is essential to develop Big Data to use in critical care medicine* [10]." The application in intensive care unit (ICU) is an actual interesting situation. The aim of big data management is usually for help shorten the time required for decision making in clinical management of patients admitted to ICU [11].

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Table 1.Some important reports on on applied big data management in clinical neurology

Authors	Details
Webb-Vargas et al. [1]	Webb-Vargas et al. summarized and discussed on the applied big data management for neuroimaging [1].
Lin et al [3].	Lin et al. reported on big data analytical approaches to the National Alzheimer's Coordinating Centerdataset [3]. Lin et al. concluded that "The approach used here could be useful for study enrichment in preclinical trials where enrolling participants at risk of cognitive decline is critical for proving study efficacy, and also for developing a shorter assessment battery[3]."
Prabhakaran [4]	Prabhakaran discussed on big data trends in stroke epidemiology in the United States [4].
Doubal et al.[5]	Doubal et al. studied on big data and data repurposing in order to answer new questions in vascular dementia (VD) research concluded that "There are many opportunities for the VaD research community to make better use of existing data [5]."
Huiang et al. [6]	Huiang et al. reported on a case study of clinical application of big data management in detecting and characterizing high-frequency oscillations in epilepsy [6].
Bianchi et al.[7]	Bianchi et al. discussed on the use the big data management technique for arrangement of clinical data on sleep disorder [7].
Horvat et al. [8]	Horvat et al. noted that there is a need to adjust the present big data management to help its application for use in clinical management for the cases of pediatric traumatic brain injury [8].

BIG DATA IN GASTROENTEROLOGY

Similar to neurology, there are some reports on using big data management for application in clinical gastrotenterology. The good example is the report by Yu et al. on evaluating the tool namely "PheNorm" for management of big data for the clinical management of cases with Crohn's disease, and ulcerative colitis [12]. Other interesting reports on applied big data management in clinical gasteroenterology are shown in Table 2.

Table 2.Some important reports on on applied big data management in clinical gastreoenterology

Authors	Details
Rusconi and Warner [13]	Rusconi and Warnerreported on neonatal screening and identifying risk factors and possible Mechanisms of necrotizing enterocolitis through big data [13].
Wooden et al. [14]	Wooden et al. reported on using big data to discover diagnostics and therapeutics for gastrointestinal and liver diseases [14].
Altaii et al. [15]	Altaii et used big data management to identify the interrelationship between aspirin use and risk of cholangiocarcinoma [15].
Genta and Sonnenberg [16]	Genta and Sonnenberg gave an expert idea on big data management in clinical gastroenterotlogy and said that "*Accepting such new research tools-based on the analysis of large pre-existing datasets rather than hypothesis-driven, in-depth prospective study-will require a new mindset in clinical research, as data might be 'messy' and only associations, but not causality, can be detected. In spite of such limitations, the utilization of these new resources for medical research harbours great potential for advancing knowledge about digestive diseases*[16]."

BIG DATA IN CLINICAL CARDIOLOGY

Similar to neurology and gastroenetrology, there are some reports on using big data management for application in clinical cardiology [17 - 19]. The good example is the report by Yu et al. on evaluating the tool namely "PheNorm" for management of big data for the clinical management of cases with coronary heart disease [12]. Other interesting reports on applied big data management in clinical cardiology are shown in Table 3.

Table 3.Some important reports on on applied big data management in clinical cardiology

Authors	Details
Emdin et al. [20]	Emdin et al. raised an interesting question on using big data management in clinical cardiology that "*Are big data on myocardial infarction enough for small heart failure patient*s? [20]"
Krittanawong et al. [21]	Krittanawong et al. discussed on big data and genome editing technology for clinical cardiology purpose [21].
Al-Kindi et al. [22]	Al-Kindi et al. report on big data analysis for the cases of granulomatosis with polyangiitis \presenting with acute aortic and mitral regurgitation[22].

CONCLUSION

The management of big data is a new useful management for clinical related activities in medicine. With the new innovative on big data, a further widely application of the technology in medicine is expected.

CONFLICT OF INTEREST: None

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