Blockchain Technology in Healthcare Domain: Applications and Challenges

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Background and aims: Blockchain is a chain of digital information and each block stores information in itself. Blockchain has a distributed, decentralized and shared ledger that is built as a chain of records called blocks. Each block in this chain is responsible for storing some kind of information. Blockchain was introduced through the Bitcoin cryptocurrency, and since then, research has been ongoing to expand the applications of Blockchain in other areas of information. Healthcare is one of the industries where blockchain is expected to have a significant impact. The aim of study is to investigate of the applications and challenges of blockchain in health care.

Method: In this article, we reviewed of literature on Blockchain in healthcare. PubMed, Scopus‹Web of Science and Google Scholar were searched by using related keywords such as " Blockchain ", "healthcare", "decentralized data management" and "health data management". To select the relevant articles, we conducted title, abstract, and full-text screening based on inclusion/exclusion criteria. we used the following inclusion criteria: original articles, full text articles and studies that used blockchain in healthcare domain. We excluded studies that were not focused on the development or use of a blockchain, non-English and review articles. Application of the blockchain in healthcare and their challenges were extracted from selected articles.

Results: Blockchain technology has various application in healthcare, including electronic medical record management, drug and pharmaceutical supply chain management, clinical research, health education, remote patient monitoring and health data analytics. Based on the review, the use of blockchain technology in healthcare is associated with some issues and challenges related to scalability, transaction delay, collaboration of health institutions, lack of law; and security and privacy.

Conclusion: The use of blockchain technology enables more efficient sharing of information with stakeholders while ensuring data integrity and protecting patient privacy. Blockchain has done a great job by creating anonymization protocols and consensus on the types of contracts needed to control information, which anonymized data is of interest to tech giants in the field of artificial intelligence. There are significant challenges in the use of blockchain technology in health care, and more research is needed in this field.

Keywords: Blockchain, health information, health data management, cryptocurrency, decentralized data management