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Editorial

Artificial intelligence in clinical chemistry – Boon or a bane

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Artificial intelligence is emerging as an important exploratory tool due to its transforming capabilities in the field of clinical chemistry. There are many novel applications of artificial intelligence with its associated tools in clinical chemistry. Due to the emergence of COVID 19 pandemic, AI has found profound implications in the field of laboratory medicine.[1,2]

Artificial intelligence is referred as the capability of instruments to replicate human intelligence. It comprises of Artificial general intelligence (wherein AI thinks like humans), Artificial super intelligence (wherein AI supersedes human capabilities) and Artificial narrow intelligence (wherein AI enhances deep and advanced learning for specific automated tasks).[3,4]

A significant area of focus of AI in clinical chemistry includes its application in predicting laboratory test results and optimizing lab resource utilization. Researchers have developed algorithms and models to optimize the utilization of lab resources. For instance, serum iron levels and the incidence of iron deficiency anemia can be derived from complete blood count.[5] Lee et al., has developed a neural network model for predicting LDL-Cholesterol levels based on total cholesterol, LDL cholesterol and triglycerides which can be used in place of Friedewald equation.[6]

AI helps in the interpretation of test results and for disease diagnosis. It plays a major role in test validation, quality control procedure and laboratory information management systems.[7] Kurstjens et al., has developed an algorithm to predict low ferritin levels based on data available from 3,797 primary care anemic patients.[8]

Finally, there is an urgent need to integrate the expertise available in clinical laboratory with AI experts for the needed digital transformation to occur in the near future. It is appropriate to manage the huge data generated by the clinical laboratory to extend the additional benefits to patient care. AI remains the ultimate tool to achieve this huge transformation in laboratory medicine.

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