Using artificial intelligence to improve quality assurance in the pharmaceutical industry

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Introduction

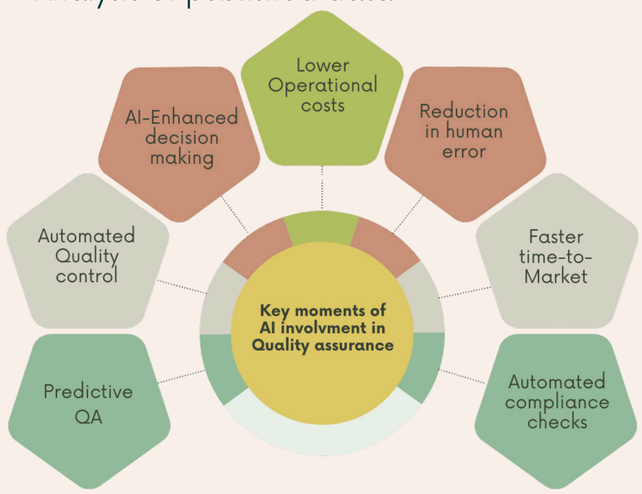
The field of quality assurance is evolving rapidly due to the widespread use of artificial intelligence (AI) and machine learning (ML) technologies. These state-of-the-art technologies have the power to completely change traditional methods as they provide enhanced capabilities for data analysis, predictive modeling and decision support, automation of routine operations, real-time quality monitoring.

Aim of the study

Examining the benefits of implementing artificial intelligence in quality management process in pharmaceutical technology.

Materials and methods

- Literature search of publicly available databases Google scholar ana Pubmed
- Analysis of published data



Evidence / Findings

Predictive Quality assurance:
AI can analyze data from manufacturing processes and equipment over a period of time, thus predicting potential product quality risks.

Automated quality control:
AI can perform some of the routine tasks of QA teams such as data entry, document processing and routine checks. This ensures continuous quality control with each batch.

AI-enhanced decision making and faster time-to-market:
AI can empower QA teams to make informed decisions based on evidence from a database. AI evaluates production data in real time, which can help decide whether a batch should be released to the market.

Lower operational costs:
Through continuous quality control and early correction of errors as well as potential risks, AI provides tight control over production processes, reducing costs associated with product recalls and costs associated with reduced quality.

Reduction in human error:
AI can automate repetitive quality control tasks as well as detect defects invisible to the human eye. In addition, it provides continuous optimization of production processes in real time, ensuring that they are in accordance with standards and requirements.

Automated compliance checks:
AI provides an automated system for reviewing regulatory documents, ensuring that all performed processes are with accordance with the requirements of regulatory agencies.

Conclusion

Through the use of advanced algorithms, predictive models and automated systems, artificial intelligence enables more precise and continuous quality monitoring, reducing the possibility of errors and supporting the decision-making process.

References

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