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«Development of software for calculating the results of medicinal substances bioequivalence»

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Problem statement

- International organizations have adopted and recognized drug standards, which should be guided by developers in the field of pharmacology.
- In practice, there is a problem: how to determine whether a reproduced drug sample really satisfies the world standard for its pharmacological action.
- It is required to implement an algorithm for checking and confirming the bioequivalence of drugs.

Task of research

- to carry out a theoretical study of the problem of determining the medicinal substances bioequivalence;
- review the analogs among the software for calculating bioequivalence results;
- compile the required algorithm for calculating bioequivalence;
- formulate requirements for the developed application;
- implement an efficient application as required.

Solution methods

- The key idea of this work is based on the assumption that the identity (or sufficient closeness) in the sense of the created pharmacological effect of the pharmacokinetic curves of the drug concentration in the blood versus time for the test drug and the standard means their therapeutic equivalence.
- The methodology is based on the assumption that the identity in the sense of the created pharmacological effect of the pharmacokinetic curves of the drug concentration in the blood versus time for the test drug and the standard means their therapeutic equivalence.
- Research methods include Python programming, use of libraries (NumPy for working with multidimensional arrays and matrices, PyQtGraph and MatPlotLib for data visualization); Visual Studio CodeB is an application development environment.

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Conclusions

Results, implementation

- So, at the initial stage of the study, the goal to develop software for calculating the results of bioequivalence of was set.
- During the software development stage, a ready-to-use application was developed. This application can calculate the results of bioequivalence of medicinal substances. The program is a complete product and can be used to calculate the results of clinical bioequivalence studies.
- The application can be improved in the following way: calculation additional indicators used in clinical bioequivalence studies; more detailed data visualization.

Contacts

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