THE MODEL OF THE KINETIC PROCESS AT SMALL ELIMINATION VALUE

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The environment is an important factor that determines the condition of the human body. Besides positive affecting factors, there are few other factors, that can affect in a negative way. One of such factors is an appearing inside human body of substances and other agents that can cause different negative effects and can lead to the human death. The factor that determines the condition of the human health is an injection of different agents into blood circulatory system, which can later leads to the negative consequences. To that kind of agents we can include different poisonous, narcotic, alcoholic and other substances, that can lead to the disruption of the functional activity of different organs of the human body, and eventually can result in a death of the person.

We decided to investigate the model of the biophysical kinetic process, that occurs in a human body in a moment of injection of the fixed volume of a specific dose of a biologically active substance according to the exponential law and achieving equilibrium concentration in a given volume, which contained in an volume that increases with time, until the establishment point of the equilibrium concentration in the whole blood volume.

In this article, we have used two-part model to analyze the dynamics of the dispensation. This model can also be used in a magnetic resonance imaging in the calculation process of the required amount of contrast agent injected into the circulatory system of humans. This model can also be applied in the case of blood loss resulting from injuries, which require restoration of the normal blood volume using injection of the saline solution.

Eventually, we have considered the dynamics of change in the concentrations of substance in the blood at the different ratios of the coefficients for the injection and dispensation for fast speed processes, when value of the coefficient of the elimination can be ignored.