Abstract

In this paper, we study the effects of the size of the control domain on the optimal control problem of monodomain model. The optimal control problem of monodomain model is a nonlinear optimization problem that is constrained by the monodomain model that represents the electrical behavior of the cardiac tissue. Two test cases with different sizes of control domain are considered, namely Test Case 1 and Test Case 2. Numerical results show that the excitation wavefront is successfully dampened out by the optimal applied current in both test cases. However, Test Case 2 (with smaller size of the control domain) requires more iteration as well as longer time to dampen the excitation wavefront. Our numerical results also indicate that higher current is required in the dampening process when the size of the control domain changed to a smaller one.

References

The Effects of Control Domain Size on Optimal Control Problem of Monodomain Model


Index Terms

Computer Science

Applied Sciences
Keywords
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