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Optimal Control to Develop Therapeutic Strategies for Metastatic Castrate Resistant Prostate Cancer

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#### ACCEPTED MANUSCRIPT

### Highlights

- Optimal control is applied to a game theoretic model of prostate cancer treatment.
- $\bullet$  Current clinical treatment schedules are compared to novel optimized schedules.
- High dose density results in competitive release causing accelerated tumor progression.
- Delaying treatment and using minimal dose provides best long-term patient outcome.
- Clinical and psychological barriers to a long-term management approach are discussed.

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