

Prevention of Atrophy in Skeletal Muscle in Cancer Patients

An admixture of commercially-available drugs

Chemotherapeutics like doxorubicin (DOX) are effective agents to treat cancer, however they cause systemic inflammation and serious multi-organ side effects, particularly skeletal muscle atrophy and cachexia. Avoiding these effects of DOX treatment could improve higher tolerance to treatment, quality of life, and survival rate of patients. Current approaches to address skeletal muscle weakness and fatigue are non-pharmacologic physical rehabilitation and nutritional optimization which are largely ineffective. Thus, identifying novel treatment strategies for skeletal muscle atrophy associated with cancer chemotherapy represent a large unmet clinical need.

The technology

Researchers at VCU have developed a combination treatment method of two commercially available drugs (herein referred to as A and B). Drug A is used for treatment of pulmonary hypertension and has been shown to protect cardiac muscle following heart attack and DOX chemotherapy. Drug B has also been found to significantly reduce damage to cardiac muscle after myocardial infarctions. Based on the individual actions of both drugs on heart muscle protection post-ischemia, the admixture of both for skeletal muscle protection has shown promising results in increasing the weakened grip strength of mice post DOX treatment (Figure 1).

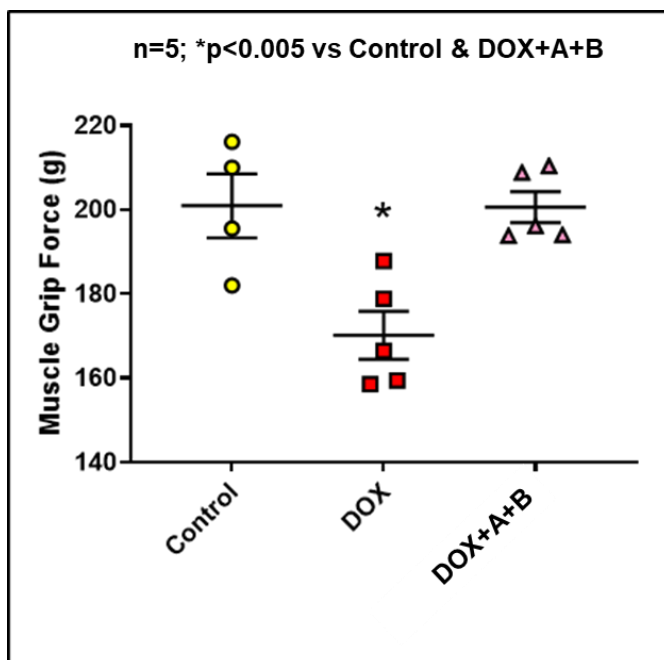


Figure 1. Combination treatment of A and B preserve muscle grip force following DOX treatment in mice.

Benefits

- » Novel use of already FDA-approved drugs
- » Improvement of patient robustness during and after cancer treatment therapies
- » Well characterized safety profiles of both therapeutics

Applications

- » Treatment of chemotherapy associated skeletal muscle loss and cachexia
- » Concurrent treatment during chemotherapy and other cancer treatments (radio- and immune therapy)

Patent status:

Patent pending: U.S. and foreign rights are available.

License status:

This technology is available for licensing to industry for further development and commercialization.

Category:

Biomedical

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