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Sildenafil ameliorates cardiomyopathy in dystrophin-null (mdx) mice

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Background

Duchenne muscular dystrophy (DMD) is the most prevalent type of muscular dystrophy and is the result of an X-linked mutation in the dystrophin gene. The progression of skeletal muscle damage is rapid in DMD patients and cardiomyopathy soon follows. We have investigated whether or not sildenafil citrate, a phosphodiesterase 5 (PDE5) inhibitor, can be used to ameliorate the age-related cardiac dysfunction in dystrophin-null (mdx) mice, a mouse model of DMD.

Results

Using echocardiography, we show that chronic sildenafil treatment prevents several functional deficits in the cardiac performance of aged mdx mice. Sildenafil treatment also prevents cardiac fibrosis from developing. Not only does sildenafil prevent cardiac dysfunction, but it also reverses established cardiomyopathy when treatment starts in aged mdx mice. This is the first study to report a cardioprotective and reversal effect of PDE5 inhibition in aged mdx mice.

Conclusion

Overall, the data suggest that PDE5 inhibitors could be a useful treatment for the cardiomyopathy suffered by DMD patients.

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