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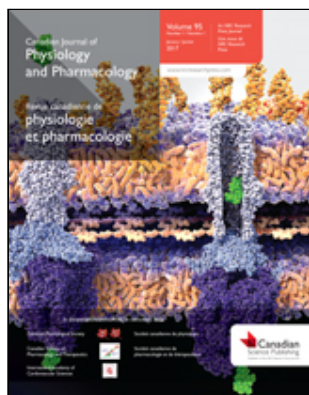
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Improved cardiovascular autonomic modulation in transgenic rats expressing an Ang-(1-7)-producing fusion protein

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ABSTRACT

Angiotensin-(1-7) counterbalances angiotensin II cardiovascular effects. However, it has yet to be determined how cardiovascular autonomic modulation may be affected by chronic and acute elevation of Ang-(1-7). Hemodynamics and cardiovascular autonomic profile were evaluated in male Sprague-Dawley (SD) rats and transgenic rats (TGR) overexpressing Ang-(1-7) [TGR(A1-7)3292]. Blood pressure (BP) was directly measured while cardiovascular autonomic modulation was evaluated by spectral analysis. TGR received A-779 or vehicle and SD rats received Ang-(1-7) or vehicle and were monitored for 5 h after i.v. administration. In another set of experiments with TGR, A-779 was infused for 7 days using osmotic mini pumps. Although at baseline no differences were observed, acute administration of A-779 in TGR produced a marked long-lasting increase in BP accompanied by increased BP variability (BPV) and sympathetic modulation to the vessels. Likewise, chronic administration of A-779 with osmotic mini pumps in TGR increased heart rate, sympathovagal balance, BPV, and sympathetic modulation to the vessels. Administration of Ang-(1-7) to SD rats increased heart rate variability values in 88% accompanied by 8% of vagal modulation increase and 18% of mean BP reduction. These results show that both acute and chronic alteration in the Ang-(1-7)-Mas receptor axis may lead to important changes in the autonomic control of circulation, impacting either sympathetic and (or) parasympathetic systems.

Keywords: [renin-angiotensin system](#), [angiotensin-\(1-7\)](#), [A-779](#), [blood pressure](#), [autonomic nervous system](#), [heart rate variability](#), [spectral analysis](#)

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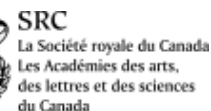
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