Effects of chemerin-9 on contractility of isolated pulmonary artery from pulmonary artery hypertensive rat

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Chemerin is an adipocytokine which binds to several receptors such as chemokine-like receptor 1 (CMKLR1) and chemokine (CC motif) receptor-like 2 (CCRL2). Chemerin-9, an active fragment of chemerin, induces vasoconstriction via CMKLR1. Pulmonary artery hypertension (PAH) is a fatal disease caused by the increased PA resistance. We examined the effects of chemerin-9 on contractility of PA from monocrotaline (MCT)-induced PAH rat. Isometric contraction of isolated PA from MCT-injected (MCT) rat was measured. Protein expression in lung or plasma was measured by Western blotting. CMKLR1 localization in lung was measured by immunostaining. Chemerin-9-induced contraction was significantly enhanced in PA from MCT rat compared with vehicle-injected control (Cont) rat. The CMKLR1 expression was increased, while the expression of CCLR2, a decoy receptor was decreased in lung from MCT rat. The plasma chemerin was increased in MCT rat. CMKLR1 was localized in endothelium of PA from Cont rat, while it was localized in smooth muscle of PA from MCT rat. We for the first time revealed that chemerin-9-induced contraction is enhanced in PA of MCT rat perhaps via increasing CMKLR1 but decreasing CCLR2 in smooth muscle.