The effect of hawthorn extract on coronary flow

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Hawthorn extract is a herbal therapy widely used for heart failure. The extract is said to be a vasodilator. We hypothesized that hawthorn extract would increase coronary blood flow in isolated perfused rat hearts. Intact hearts from Sprague-Dawley rats were perfused in the nonworking Langendorff model (constant pressure), and exposed to increasing doses of hawthorn extract (WS1442). Coronary flow was measured using a flow probe while data was collected electronically in real time. Hawthorn extract acted in two phases: 1) an early phase (between 30 and 120 seconds after addition of the drug) increase in coronary flow; and 2) a later phase (five min after addition of the drug) decrease in coronary flow. Maximum extract effect was achieved with 240 µg/mL. Other drugs of known mechanism were added in a manner identical to that of hawthorn, in order to partially determine hawthorn’s mechanism of action. L-NAME administered before hawthorn eliminated the increase in flow seen in the first phase, but had no effect on the late phase decrease in flow. Indomethacin also blocked the early phase vasodilation. We suggest that a hawthorn-induced increase in nitric oxide generation leads to an increase in prostacyclin production, thus causing early phase vasodilation.

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