

Abstract

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Characterization of the antinociceptive and anti-inflammatory activities of riboflavin in different experimental models.

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BACKGROUND: Riboflavin, similar to other vitamins of the B complex, presents anti-inflammatory activity but its full characterization has not yet been carried out.

OBJECTIVE: Therefore, we aimed to investigate the effect of this vitamin in different models of nociception, edema, fever and formation of fibrovascular tissue.

RESULTS: Riboflavin (25, 50 or 100 mg/kg, i.p.) did not alter the motor activity of mice in the rota-rod or the open field models. The second phase of the nociceptive response induced by formalin in mice was inhibited by riboflavin (50 or 100 mg/kg). The first phase of this response and the nociceptive behavior in the hot-plate model were inhibited only by the highest dose of this vitamin. Riboflavin (25, 50 or 100 mg/kg, i.p.), administered immediately and 2 h after the injection of carrageenan, induced antiedema and antinociceptive effects. The antinociceptive effect was not inhibited by the pretreatment with cadmium sulfate (1 mg/kg), an inhibitor of flavokinase. Riboflavin (50 or 100 mg/kg, i.p., 0 and 2 h) also inhibited the fever induced by lipopolysaccharide (LPS) in rats. Moreover, the formation of fibrovascular tissue induced by s.c. implant of a cotton pellet was inhibited by riboflavin (50 or 100 mg/kg, i.p., twice a day for one week). Riboflavin (10 or 25 mg/kg, i.p.) also exacerbated the effect of morphine (2, 4 or 8 mg/kg, i.p.) in the mouse formalin test.

CONCLUSION: In conclusion, the study demonstrates the antinociceptive and anti-inflammatory activities of riboflavin in different experimental models. These results, associated with the fact that riboflavin is a safe drug, is approved for clinical use and exacerbates the antinociceptive effect of morphine, may warrant clinical trials to assess its potential in the treatment of different painful or inflammatory conditions.

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