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Modulation of endogenous opiate production: effect of fasting.

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Abstract

The endogenous opiate alkaloid content in tissues from fed, 24 h and 48 h fasted rats was determined. Plasma morphine and codeine concentrations did not change in response to fasting. Morphine levels in the spleen increased 3-fold after 24 h of fasting and were lower than fed rats by 48 h of fasting; no change was detected in spleen codeine levels. Brain morphine levels were elevated 5-fold after 24 h of fasting and were two-fold higher than those of fed rats after 48 h of fasting. Brain codeine levels did not change with fasting. These results indicate that opiate alkaloids are endogenously produced in rodent tissues, particularly in the spleen, liver, and adrenals. The synthesis of morphine, in the spleen and brain, is maximally stimulated after 24 h of fasting, without alterations in tissue codeine synthesis. These suggest differential regulation of the endogenous synthetic pathways of morphine and codeine in response to the stress of fasting.

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