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Melanocortin system in Obesity and Kidney disease

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The melanocortin system is a critical neural system underlying the control of body weight and other metabolic functions. Deficits in the melanocortin system may promote or exacerbate the comorbidities of obesity. Recent, novel experimental approaches have significantly advanced our understanding of these pathways and the role of melanocortins in food intake, reward pathways, blood pressure, glucose control, and energy expenditure.

The ability of POMC and AgRP neurons to sense and respond to circulating markers of energy balance such as insulin, leptin, glucose, and ghrelin led to the hypothesis that the main role of these neurons is to match feeding to caloric needs

Based on the theory of melanocortin system in the brain with obesity patients, it may be helpful to patients with malnutrition in chronic kidney disease patients. Also, the kidney is an important effector organ of the melanocortin hormone system with evident expression of various MCRs in parenchymal kidney cells.

The brain-kidney axis can be a field that can give new solutions to nephrology.