MATERNAL PROTEIN MALNUTRITION DURING LACTATION PREDISPOSES TO A METABOLIC SYNDROME PHENOTYPE IN MALE WISTAR RATS

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Maternal nutritional insults during lactation can modulate the offspring phenotype associated with the risk of non-communicable diseases at different stages of ontogenetic development. The aim of this research was to analyze biometric and biochemical parameters of male Wistar rats, born to dams fed a low-protein diet in the first two-thirds of lactation. Therefore, the mothers received ad libitum a normal (NP, 23%) or low-protein (LP, 4%) diet, originating two experimental groups that were evaluated at 14 days old (NP-14 and LP-14). The results showed that the LP-14 offspring male rats had lower body weight (p<0.0001), reduced liver (p<0.0001) and higher brown fat deposits (p<0.0001), compared to the equivalent control. They also exhibited hyperglycemia (p<0.05), hypercholesterolemia (p<0.0001), and increased serum β-hydroxybutyrate (p<0.0001), contrasting with reduced triglycerides (p<0.05) levels. We conclude that maternal exposure to a low-protein diet during lactation was able to program 14-day-old male neonates to develop a metabolic syndrome phenotype, probably due to restriction of body and visceral growth in these animals.

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