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EARLY METFORMIN TREATMENT IMPROVES GLUCOSE TOLERANCE IN OVERFED LACTATING RATS

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Metformin is the most widely used drug for the treatment of type 2 diabetes and metabolic diseases worldwide. Lactation is understood as a sensitive phase of development capable of programming the metabolism for health or disease in adult life. The aim of this study was to verify whether treatment with metformin during lactation could attenuate the metabolic dysfunctions in Wistar rats induced obesity by overfeeding during lactation. At birth, all litters were adjusted to 9 pups (NL) for each mother and divided into two experimental groups: NL: Normal Litter Saline, NL-M: Normal Litter Metformin. Small Litter (SL) litters were reduced to 3 pups per mother on the third day of life and were divided into two experimental groups: SL: Small Litter Saline and SL-M: Small Litter Metformin. Salina (S) pups received 0.9% saline solution from the first to the twelfth day of life via intraperitoneal injection. The other group received metformin (M) (100mg/kg of body weight (bw)/day) in the same period of life. Early metformin treatment decreased body weight gain (BW) and food intake (FI) in SL-M rats at 90 days old. The increase in retroperitoneal, mesenteric and gonadal fat reserves in SL animals not treated with metformin was shown to be reduced in treated SL animals. The intravenous glucose tolerance test showed greater tolerance in SL-M. We conclude that early treatment with metformin prevented BW gain and visceral adiposity in adult rats, caused by overfeeding during lactation, as well as improved glucose tolerance, a parameter also altered in small litter animals.

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