Maternal obesity

- Idiopathic Intracranial Hypertension in Pregnancy. A Systematic Review on Clinical Course, Treatments, Delivery and Maternal-Fetal Outcome
- Guillain-Barré Syndrome following weight loss: a review of five diet-induced cases and nineteen bariatric surgery cases
- The Impact of BMI on PCOS Patients and Transcriptome Profiling and Bioinformatic Analysis of Granulosa Cells in PCOS Patients with High and Low BMI
- Role of the Unique Secreted Peptide Adropin in Various Physiological and Disease States
- Burden of disease scenarios by state in the USA, 2022-50: a forecasting analysis for the Global Burden of Disease Study 2021
- Prenatal Surgery for Open Fetal Spina Bifida in Patients with Obesity: A Review of Current Evidence and Future Directions
- Global, regional, and national burden of stroke and its risk factors, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021
- Therapeutic effect of a single lumbar puncture in idiopathic intracranial hypertension

Maternal obesity refers to a condition where a mother is obese or overweight before and during pregnancy. This condition can have significant effects on both the mother and the developing fetus. Here are some key points about maternal obesity:

Impacts on Maternal Health:

1. **Increased Risk of Complications**: Maternal obesity increases the risk of complications during pregnancy, such as gestational diabetes, hypertension (including preeclampsia), and thromboembolism.

2. **Labor and Delivery Issues**: Obesity can lead to complications during labor, such as prolonged labor, increased likelihood of cesarean section, and difficulties with anesthesia.

3. **Postpartum Health**: Obese mothers may face a higher risk of postpartum hemorrhage, infections, and long-term obesity-related health issues.

Impacts on Fetal and Neonatal Health:

1. **Increased Risk of Birth Defects**: Maternal obesity is associated with a higher risk of congenital anomalies, such as neural tube defects and heart defects.

2. **Macrosomia**: Obesity increases the risk of delivering a larger-than-average baby (macrosomia), which can lead to complications during delivery and increase the likelihood of cesarean delivery.

3. **Neonatal Complications**: Babies born to obese mothers may have a higher risk of neonatal complications, including respiratory distress syndrome, hypoglycemia, and jaundice.

4. **Long-term Health Risks**: Children born to obese mothers are at a greater risk of developing obesity, metabolic syndrome, and type 2 diabetes later in life. Maternal obesity can also influence the child's cognitive and behavioral development.

Management and Prevention:

1. **Preconception Counseling**: Women who are planning to become pregnant are often advised to

achieve a healthy weight before conception to reduce the risk of complications.

2. **Nutritional and Lifestyle Modifications**: During pregnancy, a balanced diet, regular physical activity (as advised by a healthcare provider), and monitoring weight gain can help manage the risks associated with maternal obesity.

3. **Medical Monitoring**: Regular prenatal care is crucial for monitoring the health of both the mother and the fetus, addressing any complications early, and providing guidance on managing weight gain.

4. **Postpartum Care**: Ongoing support and health monitoring after childbirth are important for addressing any issues related to obesity and promoting long-term health for both the mother and the child.

Addressing maternal obesity involves a multidisciplinary approach, including obstetricians, nutritionists, and other healthcare professionals, to optimize outcomes for both mother and child.

Dearden et al. identified programmed overexpression of hypothalamic miR-505-5p that is established in the fetus, lasts to adulthood and is maintained in hypothalamic neural progenitor cells cultured in vitro. Metabolic hormones and long-chain fatty acids associated with obesity increase miR-505-5p expression in hypothalamic neurons in vitro. They demonstrated that targets of miR-505-5p are enriched in fatty acid metabolism pathways and overexpression of miR-505-5p decreased neuronal fatty acid metabolism in vitro. miR-505-5p targets are associated with increased BMI in human genetic studies. Intra-cerebroventricular injection of miR-505-5p in wild-type mice increased HFD intake, mimicking the phenotype observed in offspring exposed to maternal obesity. Conversely, maternal exercise intervention in an obese mouse pregnancy rescued the programmed increase of hypothalamic miR-505-5p in offspring of obese dams and reduced high-fat diet (HFD) intake to control offspring levels. This study identifies a novel mechanism by which maternal obesity programs obesity in offspring via increased intake of high-fat foods [1].

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Dearden L, Furigo IC, Pantaleão LC, Wong LWP, Fernandez-Twinn DS, de Almeida-Faria J, Kentistou KA, Carreira MV, Bidault G, Vidal-Puig A, Ong KK, Perry JRB, Donato J Jr, Ozanne SE. Maternal obesity increases hypothalamic miR-505-5p expression in mouse offspring leading to altered fatty acid sensing and increased intake of high-fat food. PLoS Biol. 2024 Jun 4;22(6):e3002641. doi: 10.1371/journal.pbio.3002641. PMID: 38833481; PMCID: PMC11149872.