Background and Objective

Caesarean section (CS) rates are steadily rising and have exceeded the maximum recommended level of 15% by the OECD/WHO. The objective of this structured review was to examine the relationship between mode of delivery and the risk of offspring obesity and overweight in later life - up to 25 years old – by comparing caesarean and vaginal deliveries. A structured review was done on 11 articles extracted from 5 databases and an inclusion criteria was set. Of the 11 articles that were reviewed, there were 8 that found an association between CS delivery and obesity. In conclusion, findings suggest that there is an association between CS delivery and offspring obesity.

Results

• 11 articles were reviewed; 9 found an association between CS delivery and obesity and overweight, while 2 articles found no association between the variables, and 1 remained inconclusive.

Discussion

From 9 of the 11 articles that specifically calculated OR, it can be inferred that 7 fall above 1, which suggests a strong likelihood of offspring obesity resulting from CS delivery.

It is clinically relevant to provide evidence in the association between CS and future related health risks to enable informed decision making regarding CS delivery in the absence of medical indication.

The mechanism by which CS contributes to a greater risk of obesity seems to be based on changes in gut microbiota.

With CS, there is a lack of contact with the maternal vaginal flora, which results in reduced populations of Bifidobacteria and Bacteroides in the gastrointestinal tract - both of which protect against overweight by influencing gut energy harvest from the diet.

Some articles failed to consider strong confounders such as maternal pre-pregnancy weight or BMI, thus association should not be deemed causal.

Methodology

Structured Review

Databases

Search Terms (Preselected)

Inclusion & Exclusion Criteria

Primary, validated, and reliable CS, OR overweight, child obesity, offspring CS delivery, and obesity (key word).

Four reviewers used common inclusion criteria for reviewing literature.

Study findings and design were critically examined and resolved.

Limitations

• Only articles published in English were reviewed
• Confounding variables were not considered
• Researcher biases were not considered
• Inconsistencies were found in selecting study designs

Future Directions

Future research should consider possible confounders (such as maternal weight and SES), since unmeasured confounding variables can mask or yield spurious results.

The mechanism by which this association occurs is still unclear. Further studies must be performed to validate the microbiota theory and to explore the potential use of probiotics to negate the effects of CS delivery.

Conclusion

According to our findings, there is a positive association between CS delivery and offspring obesity compared to vaginal delivery; however, future research is required.

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References