

The effect of Body Mass Index (BMI) on the development of molar pregnancy

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Objective: To determine the potential effect of BMI on the risk of developing a complete or partial mole.

Methods: We identified a retrospective cohort of patients treated at a tertiary care referral center for complete or partial molar pregnancy between January 1, 1999 and December 31, 2014. A total of 263 women with molar pregnancy were matched to control patients who delivered normal pregnancies at the same tertiary referral center. Matching was done in a 1 to 4 ratio for cases to controls based on age, race, gravidity, parity, and year of delivery. BMI data was abstracted from the medical record, using height and weight at presentation for cases and pre-conception height and weight from prenatal records for controls. A significant amount of missing height and weight data was appreciated, particularly for subjects before 2007. To account for missing data in the control population, we used an imputation method based on delivery BMI. Subjects with a pre-conception BMI were considered complete (199 cases with 623 matched controls) and were used in a conditional logistic regression to evaluate odds of molar pregnancy.

Results: There were 801 matched controls for whom, either a pre-conception BMI, delivery BMI, or both were available. Of the 801, 272 had only pre-conception BMI, and 185 had only delivery BMI, while 344 had both. The 344 patients with both pre-conception and delivery BMI were used to fit an exponential model for the relationship between pre-conception and delivery BMI with an R square value of 0.7955. This model was then used to impute the missing pre-conception BMI for 185 controls. The relationship between BMI and complete molar pregnancy was not found to be statistically significant, with an estimated odds of complete molar pregnancy 1.018 per unit of BMI ($p=0.365$, 95% CI 0.979-1.059). Similarly, the relationship between BMI and partial molar pregnancy was not found to be statistically significant, with an estimated odds of 0.960 per unit of BMI ($p=0.0985$, 95%CI 0.914-1.008).

Conclusion: Molar pregnancies are an uncommon occurrence but are associated with increased risk of developing gestational trophoblastic neoplasia. BMI data became more readily available after 2007 perhaps reflecting the increased importance of this variable in caring for both obstetric and oncology patients. This study suggests that obesity does not have an effect on the risk of developing molar pregnancy.