The influence of symptoms, uncertainty of dates and previous miscarriage on gestation sac growth

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Objectives

To assess the potential influence of maternal obstetric history, certainty of dates and symptoms on gestational sac growth in viable pregnancies and in pregnancies that miscarry. We hypothesized that mean sac diameter (MSD) growth in viable and nonviable pregnancies was influenced by these clinical parameters. Identification of such parameters could help to develop tests to prospectively identify abnormal pregnancies at an earlier stage.

Methods

A prospective cohort study was conducted in 1078 women who underwent at least two separate assessments in the first trimester of pregnancy. Maternal history of previous miscarriage, certainty of dates and symptoms (bleeding, pain and anxiety) were recorded. Only naturally conceived singleton pregnancies with known last menstrual period and measured MSD were included. Functional linear discriminate analysis was performed to establish the influence of each parameter on MSD growth in those pregnancies that remained viable at twelve weeks and those that subsequently miscarried. Bootstrapping analysis was performed to assess the significance of these relationships.

Results

The final study group consisted of 281 women with either viable pregnancies (n=199) or (delayed, complete or incomplete) miscarriages (n=82). There were no clinically relevant influences of the parameters studied in either group. In viable pregnancies, a small difference related to anxiety was observed. In the miscarriage group, the MSD growth was slower in patients referred for pain than in those not referred for pain, but this difference was only significant during week eleven.

Conclusion

Bleeding, pain, previous miscarriage, anxiety and uncertain dates did not influence MSD growth in either viable or nonviable pregnancies. These findings suggest that MSD growth remains a viable tool to assess early embryonic development not being affected by the clinical variables studied.