FETAL BREATHING AND BODY MOVEMENT IN RELATION TO MATERNAL MEALS IN NORMAL AND INSULIN-DEPENDENT PREGNANCIES

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Fetal respiratory (FRM) and body movement (FBM) were studied on a transverse cross-section of the fetal upper-abdomen and plotted on a magnetic tape using an event marker. A total of 8 normal and 8 insulin-dependent pregnancies between 29 and 39 weeks was studied. In normal pregnancies, the % incidence of FRM and FBM was calculated from recordings which started 30 minutes before the beginning of a meal and lasted up to 90 minutes following the end of a meal. The meal itself, starting at 8, 12 and 17 hours lasted 15 minutes during which no recording was made. Maternal blood glucose (MBG) levels were measured every 30 minutes before and following a meal. In diabetic pregnancy, the same procedure was followed, except for breakfast and dinner which was preceded by a 60 minute recording period, since insulin was administered at 7.30 and 16.30 i.e. 30 minutes before the meal.

Results

1. NORMAL PREGNANCY

Before meals, the % incidence of FRM (Fig.1) varied from 24 - 30%. A steady increase from 14 to 57% could be observed after breakfast. The study period following lunch and dinner was characterized by an initial rise and subsequent fall in % incidence of FRM. MBG levels also showed a rise (max 5,8 mmol/l) following meals.

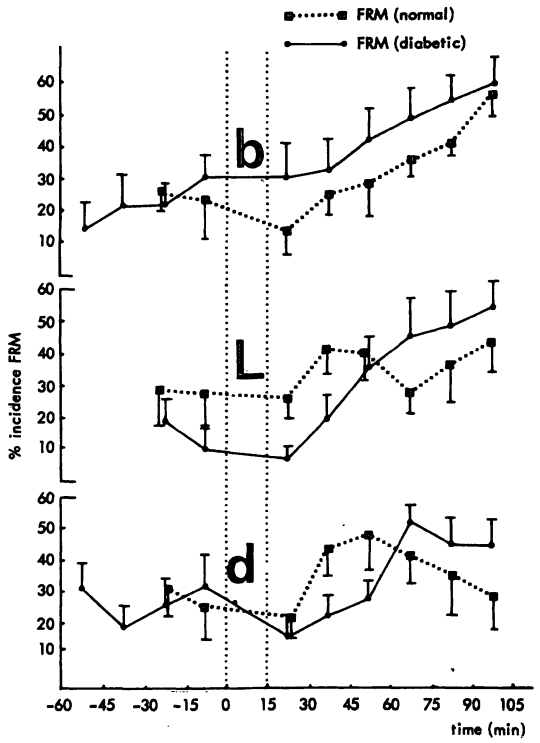

Fig.1
$\bar{X} \pm$ S.E. for % incidence of FBM in 8 normal and 8 insulin-dependent pregnancies relative to breakfast and dinner

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The preprandial % incidence of FBM (Fig.2) varied from 10 - 16%. No particular change could be observed following breakfast and lunch, however, an increase in % incidence up to 23% was seen following dinner, coinciding with a maximum MBG level of 5,4 mmol./l.

2. DIABETIC PREGNANCY

There was an increase in % incidence of FRM (Fig.1) from 15 to 31% before breakfast and a slight fall before lunch. The pre-dinner values were inconsistent. Following each meal an increase in % incidence of FRM and of MBG could be observed which was much more pronounced than in normal pregnancy, particularly following breakfast and lunch. The preprandial values for % incidence of FBM varied between 10 and 20% before breakfast and lunch and between 12 and 22% before dinner. There is a marked rise up to 33%, 60 - 75 minutes following dinner. Apart from the pre-lunch values, in diabetic pregnancy nearly all values for % incidence of FBM are situated at a higher level, when compared with normal pregnancy (Fig.2).

Conclusion

It can be concluded from this preliminary data that in the postprandial period, total fetal activity as expressed by FRM and FBM together, is considerably higher in diabetic than in normal pregnancy.

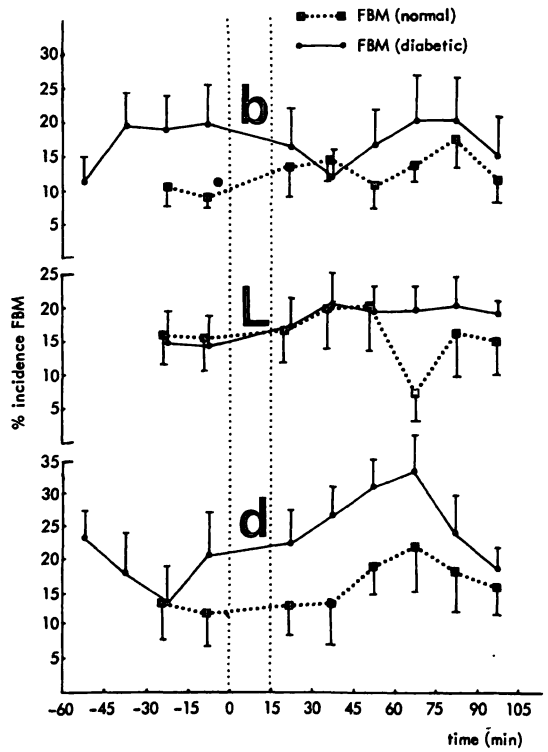

Fig.2

$\bar{X} \pm$ S.E. for % incidence of FBM in 8 normal and 8 insulin-dependent pregnancies relative to breakfast, lunch and dinner

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