



Menstrual Cycle Length in Women with Epilepsy Trying to Conceive Compared to Healthy Controls

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Rationale

Some studies have suggested decreased fecundity in women with epilepsy. Women with Epilepsy: Pregnancy Outcomes and Deliveries (WEPOD) is a multicenter prospective observational study evaluating fertility among women with epilepsy (WWE) compared to healthy controls (HC). Since abnormal menstrual cycle length can be associated with anovulation and decreased fecundity, we sought to compare the length of menstrual cycles between WWE and HC.

Methods

- WWE and HC aged 18-40 years planning pregnancy were enrolled within 6 months of stopping birth control and were followed until pregnancy confirmation or up to 12 months if they did not conceive.
- Exclusion criteria included a diagnosis of severe endometriosis, polycystic ovarian syndrome (PCOS), or infertility.
- WEPOD utilizes a customized mobile electronic patient diary application designed by Irody. Daily diary input includes medications, seizures, sexual activity, and days of menstrual bleeding.
- The data were analyzed to determine the distribution of days between the onsets of bleeding episodes, which was used to calculate menstrual cycle length.
- The median menstrual cycle length, as well as # of short (<21 days) and long (>35 days) cycles were compared across groups.

Figure 1: WEPOD application



Epilepsy Group Diary
Menses
Sexual Activity
Seizures
Medications
Mood (optional)

Control Group Diary
Menses
Sexual Activity

Both groups have a daily reminder to use application

- Generalized Estimating Equations (GEE) with a logit link was used to analyze the number of normal length menstrual cycles, abnormally long and abnormally short menstrual cycles across groups.

Results

Demographics:

Ninety WWE and 109 HC were enrolled in the study. Patient demographics are presented in Table 1.

Table 1: Demographic characteristics of participants in the WEPOD study

	WWE (n=90) % (n); mean ± std dev	HC (n=109) % (n); mean ± std dev
Age (years)		
Mean	31.9 ± 3.5	31.1 ± 4.2
Median	32	31
Range	24 – 40	23 – 40
Race		
American Indian or Alaska native	1.11 (1)	0.92 (1)
Asian	4.44 (4)	16.51 (18)
African American/ Black	1.11 (1)	15.60 (17)
White	87.78 (79)	58.72 (64)
Native Hawaiian or Other Pacific Islander	1.11 (1)	0 (0)
Other/ Mixed	4.44 (4)	8.26 (9)
Ethnicity		
Hispanic or Latino	13.33 (12)	12.84 (14)
Not Hispanic or Latino	86.67 (78)	87.16 (95)

Menstrual Cycle Diary Entry:

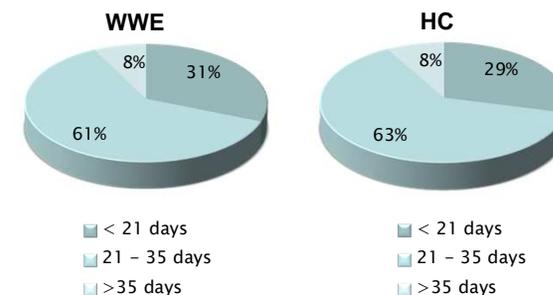
- Data were analyzed on 81 WWE and 96 HC.
- The total numbers of menstrual cycles captured were 465 for WWE and 682 for HC.

Menstrual Cycle Length Analyses:

- The median number of days between menstrual onsets was 25 in WWE and 26 in HC (no significant difference).
- The number of menstrual cycles that were shorter than 21 days was 145 (31.2%) in WWE and 198 (29.0%) in HC subjects.
- The number of menstrual cycles that were longer than 35 days was 35 (7.5%) in WWE and 56 (8.2%) in HC subjects.

Results

Figure 2: Proportion of menstrual cycle lengths in WWE and HC



The p-values for the number of normal length menstrual cycles, long menstrual cycles, and short menstrual cycles across groups were 0.70, 0.79, and 0.56, respectively.

Conclusions

- These preliminary findings of WWE enrolled in the WEPOD study demonstrate comparable menstrual cycle lengths compared to HC.
- The sample may be biased and these findings may not be generalizable because women who had been attempting pregnancy for >6 months or had a prior diagnosis of endometriosis, PCOS, or infertility were excluded.