For many women, the first morning void was consistently a concentrated sample. However, for other volunteers, this void tended to be the most dilute. Figure 2 shows the individual profiles of urine concentration, as measured by specific gravity and creatinine, for concentration differences using specific gravity and creatinine. Specific gravity, creatinine (Cobas Miras™) and LH (AutoDELFIA™) were measured on all samples. LH concentration (both uncorrected, and corrected for concentration differences using specific gravity and creatinine) was charted for each volunteer across each day for their complete menstrual cycle. One cycle was annovular and therefore excluded from LH analysis.

Methods

Women with regular menstrual cycles (n=18) were required to collect and measure volume of every single void of urine for one entire menstrual cycle. Time of void was also logged. Each void was then decanted into a sample pot for laboratory analysis. Specific gravity, creatinine (Cobas Miras™) and LH (AutoDELFIA™) were measured on all samples. LH concentration (both uncorrected, and corrected for concentration differences using specific gravity and creatinine) was charted for each volunteer across each day for their complete menstrual cycle. One cycle was annovular and therefore excluded from LH analysis.

Results

LH concentration did not have a consistent time of the day at which levels peaked. The early morning void showed LH concentrations ranging from the highest to the lowest levels of the day, as shown in Figure 3. Figure 4: Individual volunteer profile of LH range for each day of the cycle, where LH is (a) uncorrected, (b) corrected by specific gravity or (c) corrected by creatinine. Home ovulation test results are also shown (L=low fertility; H=high fertility; P=peak fertility). DOT Test LH concentration is first morning void sample on which the digital ovulation tests were performed.

Conclusions

- There is no optimum time of the day to measure LH, as long as daily measurements are taken at a consistent time of day
- Variation in urine concentration had no effect on LH surge detection
- For convenience, first morning void can be suggested as it provides an easy-to-follow testing strategy

Declaration of interest

Funded by SPD Development Company Ltd., a fully owned subsidiary of SPD Swiss Precision Diagnostics GmbH, the manufacturer of Clearblue pregnancy and fertility tests. S. Johnson, L. Marriott and P. Smith are all employees of SPD Development Company Ltd.