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A new diagnostic aid for natural family planning

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Abstract

Introduction
We have studied the use-effectiveness of salivary ferning as a diagnostic testing aid to natural family planning. We used PG/53, a pocket microscope.

Materials and methods
Use of natural family planning methods was studied in 32 women who used the new technology PG/53 to detect the fertile period. By this means the women observed their menstrual cycles and other markers of fertility, such as basal body temperature and appearance of cervical mucus.

Results
Of the 32 women participating in this research, 28 women had a good salivary test with positive ferning by the microscope in the same period as other markers of fertility. In 4 cycles the ferning was uninterpretable as there was no correspondence with the cycle phase. Ferning began 1–2 days before cervical mucus appearance, and lasted a mean of 6.2 days. Ferning occurred, on average, 7.2 days before the first day of temperature shift.

Conclusions
There is a direct correlation between salivary ferning and fertile period. Salivary ferning may be used as a new parameter to aid women to detect the fertile period in combination with other symptothermal methods of ovulation detection. We now need further research in order to improve the use-effectiveness of salivary ferning.

Introduction

Since the Congress of 1988 Barcelona, Centro Ambrosiano Metodi Naturali (C.A.Me.N.) has been concerned about the use-effectiveness of salivary ferning as a diagnostic testing aid to natural family planning [1–3].

In light of the first results of our study, it seemed to us that salivary ferning could support the symptoms analysis although those symptoms cannot be disregarded [4].

To analyze salivary ferning, we use PG/53 and have studied the menstrual cycle using fertility symptoms, observed by women, as reference markers.

For this reason we decided to study the practical reliability of PG/53 as an instrument that, by showing the salivary 'ferning', could help women who use natural methods for family planning to determine the fertile and sterile phases of the cycle [5].

Following earlier research [6] we initiated a multicenter study in order to follow a large number of cycles and verify salivary ferning reliability.

C.A.Me.N. and the University of Milan, Naples and Ancona took part in the research; recently the University of Bari joined the study.

Materials and methods

Several women using natural methods for family planning volunteered for the study. They were able to recognize the typical ovulation symptoms pattern and were asked to keep a daily record of:

- cervical mucus with its physical appearance;
- sensation caused by presence or absence of mucus in the external genital area;
- basal body temperature every day of the menstrual cycle;
- analysis of saliva

The charts containing these data will be analyzed by the Statistical Department of Medicine at the University of Milan. An echographic test was also employed in some cases to identify the ovulation day.

The salivary ferning method is very simple; the user:

- puts two or three drops of saliva on a slide;
- lets the slide dry completely at room temperature
- observes the slide with optic microscope PG/53

The analysis of saliva could give three different results:

a. absence of ferning (sterile period)
b. small arborization (beginning of fertile period)
c. complete arborization (fertile period)

Results

Preliminary data of the multicenter research are as follows: C.A.Me.N. collected 51 cycles: Milan University (15 cycles); Naples University (21 cycles); Ancona University (15 cycles).

In analyzing the first 32 cycles, we found in 28/32 cases that the salivary 'ferning' pattern had a typical distribution; in 4 cycles it was uninterpretable, but a corresponding connection with cycle phase was not apparent (Table 1).

Table 1. Analysis of 32 cycles studied by the use of PG/53

28 cases	–	Typical salivary ferning
4 cases	–	Atypical salivary ferning pattern

Table 2. Onset of salivary ferning distribution in relation to first rise of basal body temperature

T0	T–1	T–2	T–3	T–4	T–5	T–6	T–7	T–8	T–9	T–10	T–11
	o	o	o	o		o	o	o	o	o	o
		o	o	o			o	o	o	o	o
							o	o	o	o	
							o	o	o	o	
							o		o	o	
										o	
										o	
										o	
	1	2	2	2	–	1	5	4	5	8	2

Table 3. Onset of salivary ferning distribution in relation to peak day (TO)

T0	T–1	T–2	T–3	T–4	T–5	T–6	T–7	T–8	T–9	T–10
		o	o	o	o	o	o	o	o	
		o	o		o	o	o	o		
						o	o	o		
						o	o	o		
							o			
							o			
		2	2	1	2	4	7	5	1	

NB. In 4 cases salivary ferning was seen but not cervical mucus
On average, ferning begins 6 days before peak (–2 to –9)

Table 4. Relationship between salivary ferning and mucus onset to determine the beginning of fertile period

T-4	T-3	T-2	T-1	T-0	T+1	T+2	T+3
o	o	o	o	o	–	–	o
	o	o	o	o			o
	o	o	o	o			
	o	o	o	o			
	o	o	o	o			
			o				
1	5	5	6	5	–	–	2

Where the distribution was typical, we compared the ferning with symptoms of the beginning and end of fertility.

We compared the onset of salivary ferning with the first rise of basal body temperature (identified with the coverline).

In 25/32 cycles, the ferning onset was −6 and −10, in relation with the first day of basal body temperature rise (Table 2); even more apparent is the connection between the ferning onset and mucus peak (Table 3).

In 17/24 cycles, the onset was from −6 to −9 days, with a range of 6.08 days.

The statistical analysis of all 112 cycles will soon be available.

Discussion

In 88% of the cycles, salivary ferning appeared exactly during the fertile period of the cycle.

When we compared the fertile period, estimated by the salivary ferning, with basal body temperature and cervical mucus, the onset of ferning could predict and identify the beginning of the fertile period and the occurrence of ovulation.

The ferning event, on average, begins 7.46 days before the first day of basal body temperature rise; if we consider only those 28 cycles with a typical pattern, it begins 8.28 days before the first basal body temperature rise.

When we compared the beginning of fertility estimated by the cervical mucus and sensation with the salivary ferning, the two results agreed.

On average, the period from ferning to mucus peak was 6.08 days (see Table 3).

We realized that generally, salivary ferning begins 1 to 2 days before the onset of cervical mucus; in some cases (Table 4) women had seen salivary ferning but not the presence of mucus in the external genital area.

We can thus confirm that in 88% of cycles there is a direct correlation between salivary ferning and the fertile phase, as determined by other symptoms.

We conclude that a new technique has been discovered to determine the fertile period. A larger number of cycles will need to be studied to confirm this preliminary

finding and provide further understanding of salivary ferning (e.g. the ideal time for women to do the salivary test).

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Resumé

Introduction
Nous avons étudié l'efficacité du contrôle par le test de la cristallisation de la salive en forme de fougère comme diagnostic aidant au planning familial naturel. Nous avons utilisé un microscope de poche (PG/53).

Matières et méthodes
L'application de méthodes de planning familial naturel a été étudiée chez 32 femmes qui utilisent la nouvelle technique PG/53 pour déceler la période de fécondité. Les femmes ont observé leurs cycles menstruels et d'autres marqueurs de fécondité, tels que la température basale et l'aspect du mucus cervical.

Résultats
Chez 28 des 32 femmes ayant participé à cette étude, le test de la salive est apparu concluant au microscope, avec cristallisation positive en feuille de fougère à la même période que les autres marqueurs de fécondité. Pour 4 cycles, la cristallisation n'a pas pu être interprétée car il n'y avait aucune correspondance avec la période du cycle. La salive commençait à se cristalliser 1 à 2 jours avant l'apparition du mucus cervical pendant en moyenne 6,2 jours. Cette cristallisation se produisait en moyenne 7,2 jours avant le premier jour de l'élévation de la température corporelle.

Conclusions
Il existe une corrélation directe entre la cristallisation salivaire en forme de fougère et la période de fécondité. En combinaison avec d'autres méthodes thermo-symptomatiques de détection de l'ovulation, ce test peut servir de nouveau paramètre pour aider les femmes à déceler la période de fécondité. Il faut dès lors poursuivre les recherches en vue d'améliorer l'efficacité du contrôle de la cristallisation salivaire.

Resumen

Estudiamos la eficacia del uso de la formación de helecho salival como ayuda de prueba diagnóstica para la planificación familiar natural. Utilizamos PG/53, un microscopio de bolsillo.

El uso de métodos de planificación familiar natural se estudió en 32 mujeres que utilizaron la nueva tecnología PG/53 para detectar su período de fecundidad. Con este método las mujeres observaron sus ciclos menstruales y otros indicadores de fecundidad, tales como la temperatura corporal basal y la

aparición de moco cervical.

De las 32 mujeres que participaron en este estudio, 28 tuvieron una buena prueba salival con formación positiva de helecho al microscopio en el mismo período que otros indicadores de fecundidad. En 4 ciclos la formación de helecho no fue interpretable ya que no hubo correspondencia con la fase del ciclo. La formación de helecho comenzó 1-2 días antes de la aparición de moco cervical y duró en promedio 6,2 días. La formación de helecho ocurrió, en promedio, 7,2 días antes del primer día de cambio de temperatura.

Hay una correlación directa entre la formación de helecho salival y el período de fecundidad. La formación de helecho salival puede utilizarse como un nuevo parámetro para ayudar a las mujeres a detectar el período de fecundidad en combinación con otros métodos sintotérmicos de detección de la ovulación. Actualmente se necesitan más investigaciones a fin de mejorar la eficacia del uso de la formación de helecho salival.