



THE EFFECT OF PSYCHOLOGICAL INTERVENTION ON INFERTILE COUPLES QUALITY OF LIFE DURING ART MEDICAL TREATMENT

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Abstract

Infertility affects many couples at reproductive age, and it represents a major crisis for these couples. In this context their quality of life is affected. The main objective of this study is to identify the effect of psychological intervention over non intervention on infertile couples' quality of life level, during medical treatment for infertility by Assisted reproduction techniques ART (but before learning the result of either pregnant or non-pregnant). It is a prospective, cross sectional study. The subjects are 101 couples (202 subjects), ages between 20-62 years, psychologically non-clinic, distributed in two groups by their option to participate or not to psychological intervention. The intervention consist of CBT and health education sessions centered on irrational cognitions, stress management, coping strategies and resilience. Main Outcome Measures are quality of life QoL scores (measured with FertyQoL). Our results show that at the end of the medical treatment (after approx. 8 weeks) the quality of life of the group that chose not to attend psychotherapy sessions significantly decreased, and the QoL of the group that chose intervention significantly increased. In conclusion, psychological intervention during ART procedures improves significantly the patients' quality of life.

Keywords: *infertility, psychotherapy, quality of life, emotional distress, CBT, fertyQoL.*

1. INTRODUCTION

In developing countries infertility affects 1 in every 6 couples that wish to have a baby, and infertility treatment is a physical and psychological burden for these couples (Verhaak et al., 2007), and their quality of life is affected.

Infertility treatment frequently means a number of repeated intervention cycles succesfully or not, a long lasting process that creates a specific type of emotional distress, with disappointments and even despair, negative emotions, loss of self esteem, negative physical symptoms and cognitive or behavioral disruptions

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(e.g. lack of attention concentration, disrupted daily activities, delayed life plans). Sometimes marital relationship or partnership and even social interactions are affected by fertility problems (e.g., social inclusion, expectations, stigma, support), couple members avoid their family or friend with children and sometimes have resentments toward their partner (Boivin et al, 2001) and these means a decrease in quality of life level. They tend to live in an “emotional roller-coaster” (Convington et al, 2006) with monthly cycles of hope and despair around the moments of ovulation and menses. 23 % of couples interrupt the infertility treatment because of these experiences (Brandes et al, 2009)

The strict schedule of the diagnostic tests and treatments sometimes interferes with some couples’ activities or professional careers (cancelling or postponing holidays, exams, projects at job) and this generates frustration. 15-20% couples perceive ART (Assisted Reproduction Techniques) procedures so stressful that they themselves ask to attend psychological counselling (Wischmann, 2008; Boivin et al, 2001). Some couples decide from the beginning that they will not take extreme measures in trying to have a baby but others spend years and impressive amounts of money trying all treatment options. The diagnostic and treatment procedures are invasive and have a strong impact on patients private life, that is why the medical staff should be aware of couple relation dynamic and their ability to face the psycho-emotional effects of the treatment.

Fertility clinics should aim to offer emotional and psychosocial support to their patients in the same way they do for their medical problems, and make sure that this support is available starting with the diagnostic and all along medical treatment and even after the result (positive or negative) ensuring the patient’s satisfaction reflected in their quality of life and treating the patient not the disease. (Boivin et al, 2001).

2. OBJECTIVE AND HYPOTHESES

2.1. OBJECTIVES

The main objective of this study is to examine the effect of psychological intervention and of the absence of intervention on the infertile couples’ quality of life level during ART medical treatment (but before finding the result: pregnant or non pregnant).

The study has the following specific objectives:

1. To find if there are statistically significant differences in quality of life (QoL) level of the subjects who choose to attend psychological intervention and the subjects who choose not to attend psychological intervention before starting the medical treatment (test-initial moment).

2. To find if there are statistically significant differences in QoL level between the first testing (before starting the medical treatment) and the second testing, after

they finish the medical treatment (statistically controlling the initial level of QoL) in both groups.

2.2. HYPOTHESES

The general hypothesis of the study – there is a significant difference in quality of life level as a result of psychological intervention or nonintervention during ART medical treatment of infertility in couples diagnosed with infertility.

Research hypotheses:

1. There are statistically significant differences in QoL level of the subjects who choose to attend psychological intervention and the subjects who choose not to attend psychological intervention before starting the medical treatment (test-initial moment)

2. There are statistically significant differences in QoL level between the first testing (before starting the medical treatment) and the second testing, after they finish the medical treatment (statistically controlling the initial level of QoL).

3. METHOD

3.1. Participants

For this study were selected 101 couples (202 participants: 101 men, 101 women), diagnosed with infertility by a multidisciplinary team (endocrinologist, gynecologist, genetician etc). They were selected from 150 couples that agreed to participate. The inclusion and exclusion criteria are – couples: men and women, married or in consensual union, age between 20 and 62 years, romanian citizens, members of infertile couples diagnosed with infertility that referred to the infertility clinic for specific treatment (IVF:in vitro fertilisation, ICSI: intracytoplasmatic sperm injection). They are psychologically non clinic population, with no personality disorders, no other psychiatric problems in their medical background, no children from other previous relations or current relation, no voluntary pregnancy interruption. We mention these last two exclusion criteria because we anticipate that presence of a child or voluntary pregnancy interruption might introduce new variables that can affect the perception on quality of life.

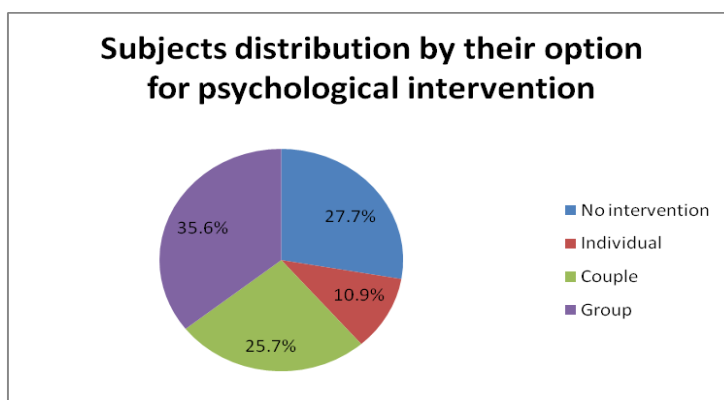
Subjects level of education is mostly high education (84.2 % men , 82.2% women) and medium education. 66.3% men and 65.3 % women are at their first ART procedure, the rest have at least one ART procedure in their medical history. Subjects' infertility type is: 16.8 % couples with male infertility, 40.6 % female infertility, 18.8 % mixt infertility and 23.8 % idiopathic infertility .

The participants were distributed in two groups accordig to their option to participate (Intervention group named here *group 1*) or to not participate (non intervention group named here *group 2*) to the psychological intervention sessions. Group 1 subjects selected also the type of intervention they want to attend: individual, couple or group intervention.

Group 2 has 56 subjects (28 couples) (27.7% of all participants), group 1 has 146 subjects (73 couples, representing 72.3% from eshantion), 10.9% attended couple intervention (22 subjects), 25.7% group intervention (52 subjects), 35.6% individual intervention (72 subjects) (Figure 1).

The ethics committee of University of Medicine and Farmacy Carol Davila approved the study. All patients were informed verbally and written about the type, benefits and the purpose of this study, and gave written consent for the study. The study is in accordance with ethical principles of Helsinki Declaration.

Figure 1 – Subjects distribution by their option for psychological intervention



3.2. Instruments

The questionnaire FertyQoL is a validated instrument to measure quality of life in individuals experiencing fertility problems (www.fertyqol.com).

The questionnaire has first two items capture an overall evaluation of physical health and satisfaction with quality of life and other 34 items structured as a core section related to personal and interpersonal quality of life (“Core F”) and an optional section related to treatment quality of life (which we do not use here).

Core FertiQoL has 4 subscales: The Emotional subscale (6 items) assesses the extent to which the individual experiences negative emotions associated with the experience of fertility problems (e.g. jealousy & resentment, sadness, depression). The Mind-Body subscale (6 items) assesses to what extent the individual experiences negative physical symptoms (e.g., fatigue, pain) and cognitive or behavioral disruptions (e.g. poor concentration, disrupted daily activities, delayed life plans) as a result of the infertility. The Relational subscale (6 items) assesses the extent to which components (e.g. sexuality, communication, commitment) of the marital relationship or partnership have been affected by fertility problems. The Social subscale (6 items) measures the extent to which social interactions have been affected by fertility problems (e.g. social inclusion, expectations, stigma,

support). Cronbach reliability statistics for the Core and Treatment FertiQoL (and subscales) were satisfactory, in the range of 0.72 and 0.92 (Boivin, J. et al, 2011).

3.3. Statistical Analysis

For statistical analysis we used SPSS version 20, using Mean Scores, Standard Deviation, Independent t-Test, Test Mann-Whitney, ANCOVA unifactorial, Cohen's d effect for T test and partial Eta-squared for ANCOVA, descriptive and inferential analysis.

3.4. Study stages

The couples referring to the fertility clinic for diagnostic and treatment who agreed to participate in this study and meet the inclusion criteria were tested for quality of life level with FertyQoL questionnaire before starting medical treatment. The scores of the two groups were compared.

Then they express option either to participate or not in psychological intervention sessions, and they also choose the type of intervention.

We elaborate the CBT intervention protocol based on primary prevention model and in accordance with theoretic conceptualization. Primary intervention is psycho-education in specific context of infertility. Individual intervention consist of 8 sessions of 60 minutes, couple intervention – 8 sessions of 90 minutes; group intervention – 6 sessions of 180 minutes.

Main objectives of the intervention – to clarify the psychosocial aspects of infertility, to identify and improve couple coping abilities, decision making, to identify and resolve couple conflicts, to improve communication with extended family and medical staff, coping in failure situation, support to find alternatives to ART, stigma elimination, face the crisis, learning relaxation techniques, cognitive reframing, eliminating negative thoughts and dysfunctional attitudes.

After psychological intervention and finishing medical treatment but before learning the result (pregnant or nonpregnant) all the subjects were asked again to fill in the FertyQoL questionnaire. The retest scores were compared between groups and with initial QoL scores.

4. RESULTS

Hypothesis one: There are statistically significant differences in QoL level of the subjects who choose to attend psychological intervention and the subjects who choose not to attend psychological intervention before starting the medical treatment (test-initial moment)

The majority of subjects included in the study (49.5%) have a medium level of quality of life, 24.8% of the subjects have a low level of QoL and 25.7% have a high level of QoL.

FertyQoL mean score for the entire group of subjects is 61.61 (± 20.28) which is a medium level, on Emotional dimension the mean score is 54.54, on Mind Body dimension the mean score is 67.10, on Relational dimension 62.85, and on Social dimension of QoL the mean score is 61.61.

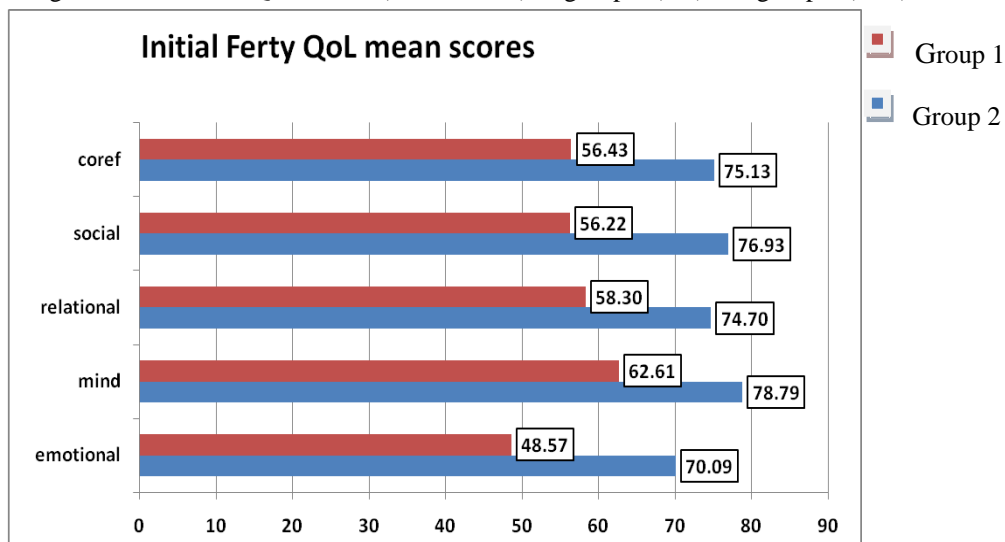
The quality of life mean scores of the group 2 are higher than group1 mean scores.

Group 2 have the highest values on Mind-Body 78.79 (± 14.614) and Social scales: 76.93 (± 16.495).

Group 1 have the highest scores on Mind-Body 62.61 (± 18.125) and Relational scales: 58.30 (± 14.975) (Figure 2).

There are significant differences between QoL levels of the two groups on CoreF ($z=-7.391$, $p<0.001$), Emotional ($z=-6.903$, $p<0.001$), Mind-Body ($z=-5.265$, $p<0.001$), Relational ($z= -5.620$, $p<0.001$), and Social ($z= -7.214$, $p<0.001$) scales (Figure 2).

Figure 2. Initial FertyQoL scores (mean scores) of group 1 (red) and group 2 (blue)



An independent-samples t-test (two tailed) was conducted to compare mean scores of CoreF in psychological intervention or nonintervention before ART medical treatment of infertility conditions. There was a significant difference in the mean scores of CoreF in psychological intervention ($M=56.43$, $SD=12.93$) and no psychological intervention ($M=75.13$, $SD=14.43$); $t(90.8)=8.48$, $p < 0.01$ conditions; of Emotional scale in psychological intervention ($M=48.57$, $SD=17.54$), and no psychological intervention conditions ($M=70.09$, $SD=18.73$), $t(200)=-7.658$, $p<0.001$, Mind Body scale in psychological intervention ($M=62.61$, $SD=18.12$), and no psychological intervention conditions ($M=78.79$, $SD=14.61$), t

(200)=5.974, $p<0.001$; Relational scale in psychological intervention (M=58.30, SD=14.97), and no psychological intervention conditions (M=74.70, SD=15.38), $t(200)=6.914$, $p<0.001$; Social scale in psychological intervention (M=56.22, SD=14.10), and no psychological intervention conditions (M=75.13, SD=14.43), $t(87.5)=8.305$, $p<0.001$. These results suggest a very strong effect of the option for psychological intervention on these differences.

Cohen's d coefficients vary: 1.407 for Social, 0.944 for Mind-Body scale, global CoreF Cohen's d is 1.406 indicating a very strong effect of the option for psychological intervention on these differences.

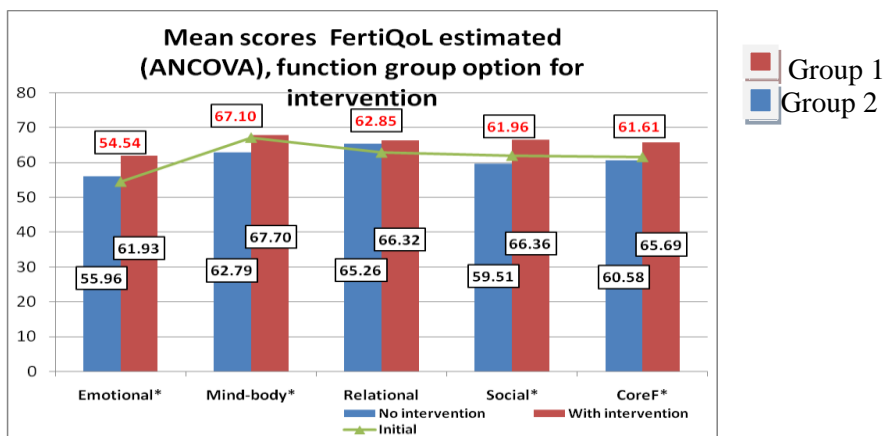
The result confirmed the hypothesis 1: there are statistically significant differences in QoL level of the subjects who choose to attend psychological intervention and the subjects who choose not to attend psychological intervention before starting the medical treatment.

Hypothesis two: There are statistically significant differences in QoL level between the first testing and the second testing, after they finish the medical treatment (statistically controlling the initial level of QoL).

Maintaining constant the effect of this variable is necessary that is why we used ANCOVA to analyse the effect of psychological intervention on final QoL level.

ANCOVA indicates a significant difference on final QoL level [$f(1.199)=73.944$, $p<0,001$] (Figure 3). The statistic significant difference is ($p<0.001$) 5.110 ± 1.172 , between Core F medium values recalculated for the two groups.

Figure 3. Mean scores FertiQoL (ANCOVA) group 1 and group 2



We can affirm that subjects that choose to attend psychological intervention have a medium value of CoreF higher than those who didn't participate to therapy, compared to initial scores.

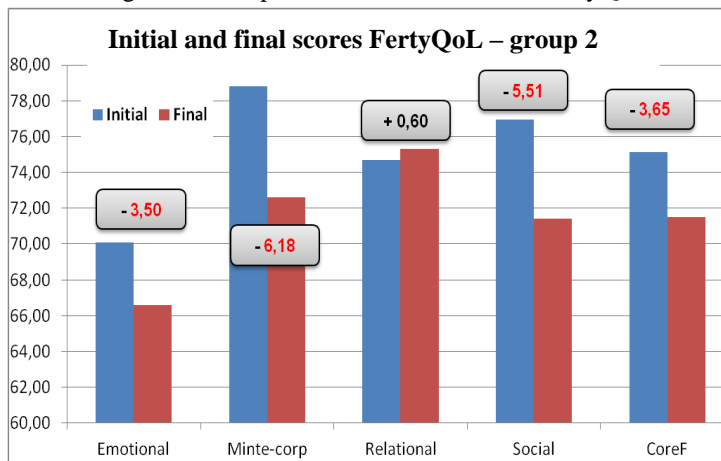
The effect of choosing or not psychological intervention is big, the value of eta-squared coefficient is over 0.138 (eta squared = 0.271)

ANCOVA indicates a significant difference on Emotional QoL [f(1.199)=23.514, p<0.001] (p<0.001), of 5.962 ± 2.424 , on Mind Body scale, [f(1.199)=32.613, p<0.001] of (p<0.001) 4.902 ± 1.692 and on Social scale [f(1.199)=49.339, p<0.001] of (p<0.001) 6.852 ± 1.924 , the difference is bigger for group 1 on all of the three scales .

The effect of choosing or not psychological intervention is medium for Emotional scale, the value of eta-squared coefficient is between 0.06 – 0.138 (eta squared = 0.106), big for Mind Body scale, the value of eta-squared coefficient is over 0.138 (eta squared = 0.141) and also big for Social Scale (eta squared = 0.199). ANCOVA didn't indicate a significant difference of Relational QoL scale [f(1.199)=2.437, p>0.05].

Group 2 results: We can notice a decrease of CoreF, Emotional, Mind Body and Social scores, and a small increase of Relational scores in non-intervention group QoL (Figure 4).

Figure 4- Group 2 initial and final scores FertyQoL



The decrease for CoreF is -3.65 (± 0.741), Mind Body -6.18 (± 1.222), Emotional -3.50 (± 1.375) and Social -5.51 (± 1.491) and the increase for Relational is 0.60 (± 0.687).

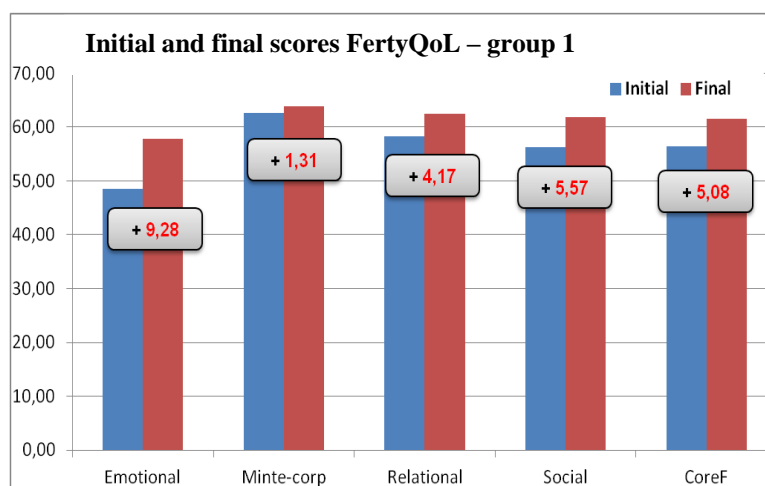
A dependent-samples paired t-test (two tailed) was conducted to compare differences between initial and final mean scores of CoreF indicates a statistic significant difference for CoreF, (M= 3.64583, SD=2.76671, t = 9.861, df = 201, p<0.001), Emotional (M=3.49702, SD= 5.13559, t = 5.906, df = 201, p<0.001), Mind-Body (M=6.17560, SD=4.56374, t = 10.126, df = 201, p<0.001) and Social (M=5.50595, SD= 5.56794, t = 7.400, df = 201, p<0.001) scales and no significant differences for Relational (M= -0.59524, SD= 2.56587, t = -1.736, df=201, p>0.05).

The effect analysis shows that the time of 8 weeks necessary for treatment and intervention has a reduced effect on scores difference (Cohen`s d smaller than 0.5).

The hypothesis is partially confirmed - there are statistically significant differences in QoL level of group 2 between initial and final scores of quality of life (8 weeks after retest): in absence of psychological intervention, after 8 weeks of ART QoL level is lower compared with initial level, but except Relational scale.

Group1 results: It can be noticed a higher level of QoL on all medium values of it`s dimensions (Figure 5), after psychological intervention the general quality of life increased significantly.

Figure 5. Group 1 - initial and final scores FertiQoL



Compared to initial level there is an increasing in final CoreF scores by 5.08 (± 0.738) ($p=0.000$), 9.28 (± 1.628) ($p=0.000$) on Emotional scale, 1.31 (± 0.999) ($p=0.000$) on Mind-Body scale, 5.57 (± 1.017) ($p=0.000$) on Social scale and 4.17 (± 0.824) on Relational scale.

A dependent-samples paired t-test (two tailed) was conducted to compare differences between initial and final mean scores of CoreF indicates a statistic significant difference for all scales (M=-5.07991, SD=4.51140, $t = -13.606$, $df = 201$, $p<0.001$), Emotional (M= -9.27511, SD= 9.95404, $t = -11.259$, $df = 201$, $p<0.001$), Mind-Body (M= -1.31279, SD = 6.10715, $t = -2.597$, $df = 201$, $p<0.001$), Relational (M= -4.16667, SD = 5.03817, $t = -9.993$, $df = 201$, $p>0.05$) and Social scale (M=-5.56507, SD=6.21450, $t = -10.820$, $df = 201$, $p<0.001$).

The effect dimension analysis reveals that psychological intervention option has a medium effect on these differences for Emotional scale (Cohen`s d is between 0.5-0.8) and a reduced effect on differences of CoreF, Mind-Body, Relational, Social scale (Cohen`s d is smaller than 0.5).

The hypothesis is confirmed for group 1 - there are statistically significant differences in QoL level between the time of starting the medical treatment and after they finish the medical treatment and psychological intervention – the QoL level after 8 weeks is significantly higher than the initial level when attending psychological intervention during ART treatment, the most significant increasing is on Emotional level, than Social, Relational and the smallest increase on Mind body level.

Discussions

At the beginning of medical treatment patient who choose to attend psychological intervention have a lower level of quality of life than patients who choose not to participate -which explains their option to not attend therapy.

Our results confirm other international studies – patients that choose to attend psychological intervention usually have a higher level of personal, social and marital distress (here measured with social, relational and emotional scales) than those who do not choose intervention or do not participate at support groups (Boivin et al, 2001; Schmidt et al, 2003, Pook 2001).

The subjects who choosed to attend psychological intervention have higher levels of QoL at the end of medical treatment compared initial level.

In absence of psychological intervention, after 8 weeks of ART, QoL level is lower compared with initial level, except Relational scale. A possible explanation for increasing the relational aspects of QoL (marital relationship) might be that the medical treatment for infertility usually increase the couple cohesion (Galhardo et al, 2011, Monga et al, 2004, Schmidt et al, 2005).

The patients also declare that psychological counselling and access to a support group are beneficial for them (Baram et al, 1998; Schmidt et al, 2003) and that these should be available for them during all the stages of infertility diagnostic and treatment.

5. CONCLUSIONS

When attending psychological intervention while undergoing medical treatment for infertility (ART procedures), couples experience a significant increasing in the quality of life compared to quality of life level measured after diagnosys and before starting medical procedures. This fact is due to psychological intervention, and aggregated effect of other external factors (gender, previous ART procedures, type of infertility). In the absence of psychological intervention patients' quality of life level decreases.

That is why we consider that psychological counselling should be available for the couples at all times during infertility medical treatment and afterwards, no matter the result (pregnant or non pregnant)

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