

Vyas's Modification of Huhner's Test : An Innovation for Immunological Infertility

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OBJECTIVE - To evaluate Vyas's modified Huhner's test by investigating immunological factors in the etiology of unexplained reproductive failure and to investigate its relevance as a diagnostic and psychotherapeutic tool. **METHODS** - In a prospective clinical study of 454 couples with unexplained reproductive failure with psychodynamics of conflict, fear and apprehension, modified Huhner's test was carried out in 295 couples. Huhner's test was modified with the incorporation of examination and demonstration of normal pretest semen in office. Semen was then instilled by a cannula onto the cervix and after half an hour, aspirate as well as the pretest specimen were compared, demonstrated and explained to the couples. Psychotherapy was given. **RESULTS** - The success is evaluated in terms of conception. There is an unprecedented success rate of 66%. **CONCLUSION** - Vyas' modification of Huhner's test is a valid innovation to establish immunological infertility which is modulated by psychodynamics and is reversible by psychotherapy.

Key words : modified Huhner's test, immunological infertility, unexplained reproductive failure

Introduction

The psychological factors in the etiology of various ailments started becoming relevant since Selye¹, in 1936, propounded the theory of stress. The impact of emotions on the hormonal axis was well known even before the stunning discovery that the brain produces so many hormones that it may well be termed the largest endocrine gland in the body. An altogether different conceptualization of transfer, relay and transduction of messages between the various organs and systems has taken place. This is on account of numerous discoveries of several neurotransmitters, neuroreceptors, neuropeptides, and neurohormones and their mechanism of physiological action². The immune system is also affected by emotions as psychoneuroimmune correlates of the stressful state are now known³⁻⁶. The presence of immunoglobulins in the sera and cervical mucus of infertile couples is extensively documented^{7,8}. But there is no evidence so far to correlate the immune status of cervical mucus with psychodynamics.

Through a recent publication, we showed that psychodynamics has a significant relevance to causation of what so far has been termed as unexplained reproductive failure⁹. We postulated that negative feelings in the couples with unexplained reproductive failure generate stress that culminates into a cascade of

molecular biological responses. This has a compound effect manifesting either as a symptom or system failure in a particular organ / system that may happen to be targeted.

The present study is based on the hypothesis that in women with unexplained reproductive failure, the target organ may be the cervix. The mechanism is immunological and is in the form of immunoglobulins in the cervical mucus. The operative mechanism, we postulate, is in the psyche.

The foundation of the hypothesis rests on the following data. In coining the term, "cervical hostility" for Huhner's test, the gynecologist of yore has demonstrated an insight. The "hostile" factors in the cervical mucus have been identified as immunoglobulin IgG, IgA and IgM¹⁰. The prognostic value of their presence in the cervical mucus is established⁸. Based on the assumption that the proteins in the sperm may be responsible for the development of topical immunity / hypersensitivity at the cervical level, the clinicians do recommend use of condoms for a period of six months or so and it has some success.

The next step in the hypothesis is that psychodynamics of negative feelings like hostility between the partners may be one of the factors modulating the immune status of the cervical mucus in infertile women.

With this premise, when we thought of studying this uncharted arena, the short-coming of the classical Huhner's test were evident¹¹. The classical test was done post-coitally. The cervical and vaginal aspirates were

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collected in the office of the gynecologist and were sent away to the pathology laboratory. At times, the pathologists were asked to carry on the test as per their convenience and report. As a post-coital test, it was done several hours after the intercourse, even on the day after. The resultant time lag can vitiate the result. Since we had evidence to suggest the involvement of psyche in the causation, it was also thought that the incorporation of the couple in the reading of the test result can be psychotherapeutic. Therefore, the study was carried out with some modifications. We call this Vyas's modification of Huhner's test.

Material and Methods

Between June 1978 and May 1998, 2235 couples were seen by us for reproductive failure. Out of them, 454 cases were of unexplained reproductive failure.

The psychodynamic profile of these couples was studied. It revealed a troubled psyche with a background of conflict, fear arising out of numerous situations or the intense desire and hyperanxiety to have a baby. These findings are reported elsewhere⁹. The Huhner's test was modified as follows:

1. The elementary biological details were explained to the couples.
2. A normal semen report was obtained from the laboratory.
3. Fresh specimen of semen was collected at the office premises in a clean, sterile container.
4. Except for a drop or two of the semen kept in reserve in the container (specimen A), the rest of the semen was instilled on to the cervix by insemination cannula immediately after the collection.
5. It was allowed to be drained into the posterior fornix of the vagina also.
6. A time lapse of half an hour was then allowed.
7. The aspirates from the cervical canal (specimen B) and posterior fornix (specimen C) were then examined.
8. The normalcy of specimen A was ascertained after the same time lapse.
9. Whatever changes occurred in specimen B and specimen C, were noted, shown and explained to the couples.
10. These couples were counseled about the concept of "bodymind"^{1, 14} with a hint that the cause as well as the cure may lie in the psyche.

Modern medical science has mainly relied on the Cartesian premise that the body and mind are two separate entities. Soon after Pert discovered endorphin, several advances in the form of discovery of

neurotransmitters were made linking them with thoughts and emotions. This resulted in a significant paradigm shift and Pert¹⁴ was the first one to use the term "bodymind" connoting a single entity.

The test was considered abnormal (negative) when the sperms showed loss of forward movement, circular movements, complete loss of motility or clumping and autolysis.

Psychotherapy was initially given as non-directional psychotherapy. It was then extended as directional psychotherapy as well. This included guided imagery and visualization, indirect hypnotherapy and goal-oriented hypnotherapy specifically programmed for the couples. This is being reported separately.

Results

Modified Huhner's test was conducted on 295 women. Initially it was thought that 159 women in whom the test could not be carried out for a variety of reasons would form a control group. But the group was too heterogeneous for comparable study and so it has not been discussed further. The age wise distribution is given in Table I for general interest though there is no direct relevance of age to the objectives of the study. The test was said to be normal (active, forwardly motile sperms and no agglutination) in 150 women and abnormal (negative) in 145 women. It would therefore be appropriate to conclude that nearly 50% of women who are termed as unexplained reproductive failures, belong to the immunological infertility group. There was uniformity in the results of specimen B and specimen C. Duration of infertility in various age groups in women with normal and abnormal test, and the success rates are analyzed in Table II. We had a success rate of more than 50% in all the groups except one sub-group. This has no relevance to the objective of the study. It has to be emphasized that success is compared not with certain failure, but with the numbers of those women who opted out of our treatment without our knowledge and were lost to follow up. This may have been on account of unreported success also. Infertile couples are generally known to be a floating population, shifting from one gynecologist to the other. Rapport building is the foundation of a successful outcome in a doctor-patient relationship; though it is an intangible input and difficult to quantify. Ninety four out of 295 women have been lost for follow up. One of the factors for the high success rate may be due to the fact that at every step the couple (the husband was required to be present at every consultation) was involved in the treatment. The success of the therapy in terms of conception is analyzed in Table III. The demonstration of the test and subsequent explanation had a dramatic psychotherapeutic effect.

Conception followed in 22 women with abnormal test and 28 women with normal test within three months. Twenty-two women who had abnormal test were tested once again following conception. They were found to have reverted their status to normal. In the normal group, the test was psychotherapeutically utilized as a confidence building measure so that they had further proof of the assurance that there was everything normal with them. The remaining 123 couples with abnormal test were offered further psychotherapy. There was successful conception in 34 women within next nine months and in 31 women within 12 months thereafter and in 9 women later still. In all, 96 women out of 145 with abnormal test i.e. 66% achieved conception. In all the subgroups, based on the duration of treatment, the number of successes exceed the number of women lost for follow up, except in the sub-group of 7-12 months in the abnormal test series. This finding is not relevant to the objectives of the study. The successful results for the group with normal test are slightly higher (70%) (Table IV). The difference is small; more relevant is the fact that the two groups are dissimilar in their etiology and the common factor is only in the modality of treatment. The obvious conclusion can therefore be that addition of the test and subsequent psychotherapy is useful in women with immunological infertility as well as in the other group vaguely labeled as unexplained reproductive failure.

Table - I: Age

Year	No.
18 - 24	95
25 - 29	144
30 - 35	42
7-35	14
Total	295

Table - II: Duration of Infertility and Success Rates.

Duration of Infertility (Years)	Normal Test		Abnormal Test	
	Success	Lost For Follow Up	Success	Lost For Follow Up
0-2	28	10	34	14
2-3	42	12	24	11
4-5	19	11	16	20
6-7	10	10	15	2
8-10	6	2	7	2
Sub-total	105	45	96	49
Total	----150----		----145----	

Table - III: Results of Psychotherapeutic Intervention

Time taken for Conception (Months)	Normal Test		Abnormal Test	
	Success	Lost for Follow up	Success	Lost for Follow up
<3	28	-	22	-
4-6	34	12	26	12
7-12	18	14	8	18
13-24	16	13	31	15
>24	9	6	9	4
Sub-Total	105(70%)	45	96(66%)	49
Total	-----150-----		-----145-----	

Discussion

In the standard protocol for investigation and treatment of infertility, most clinicians do not incorporate Huhner's test. Investigations for the presence of immunoglobulins in the sera are not available easily. Therefore, several cases of immunological infertility are undiagnosed and lumped together with the omnibus title of unexplained infertility. Besides, incorporation of the study of the psychodynamic components has not been explicitly thought of, though there are numerous studies about stress being associated with an infertile state and anxiety being associated with expectant treatment.

Based on the emergence of a new paradigm of a single entity of bodymind, we hypothesize that immunological factors may be at work in the classically labeled cases of cervical hostility. We postulate a transduction of negative emotional feelings from psyche to the immune system which expresses in biochemical form as the presence of antibodies in the cervical mucus. The detailed molecular biological events beginning from negative thoughts to materialization in the form of immunoglobulins would require numerous sophisticated laboratory tests and clinical trials. But a beginning is already made in an editorial comment based on the experimental evidence available that thoughts may be equated with floating particles in the blood⁷.

Our study relies on the indirect evidence based on clinical observation. The presence of immunoglobulins IgG, IgA, and IgM has been reported in infertile couples in the sera and cervical mucus and the presence of the particular immunoglobulin is time related^{7,8,15}. It would have been of further significance, therefore, to test for the presence as well as titers of

immunoglobulin IgG, IgA, IgM in the cervical mucus of the women under study.

In fertile women, the immunoglobulins are present in only 1% of the women, though not all infertile women show their presence and some showing their presence also do conceive over a long period of time. It is, therefore, likely that antibodies are the cause for the infertility as well as the delay beyond the usual fertile time-scale. Best reported results so far in the treatment of immunological immunity have a success rate of 30-40% with emphasis on the use of corticosteroids. Considering that the immunological factors are operative in infertile couples, the term immunological infertility would appropriately take this group out of the omnibus term unexplained reproductive failure. The fact that not all unexplained cases show the presence of antibodies would mean that reasons other than immunological are at work in them.

The demonstration of the Huhner's test and its explanation by itself could have been the significant psychotherapeutic input in 22 women. Immediate success in a significant number of women within three months of the test can be attributed to placebo effect. But this will further augment our hypothesis since the mechanism of placebo effect is psychodynamic. It may further substantiate current hypothesis about the operative mechanism of the placebo effect itself. Since IgM is the earliest immunoglobulin to appear as well as disappear, this early success can be due to elimination of IgM. It will require further laboratory studies to establish this.

We have achieved a high degree of success to the tune of 66%. This, we attribute to the addition of psychotherapy. This is unprecedented in the literature. We may now call this group as psychoimmunologically infertile. Successful therapeutic outcome following the demonstration of the test may be due to psychodynamic resolution. The success of psychotherapy not only gives credence to the importance of psychological factors in the etiology of unexplained infertility but also substantiates a dynamic flux at the immune level.

Further researches in the form of measurements of the titers of immunoglobulins in the cervical mucus as well as in the sera before and after various forms of psychotherapy would take the hypothesis further.

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