Introduction

Infertility is said to be idiopathic or unexplained when a couple does not conceive and no definite cause of infertility can be diagnosed after a complete evaluation ***(aboulghar et al, 2003)***.

Unexplained infertility is a diagnosis of exclusion, and up to 25% of patients who present for investigation in a reproductive medicine clinic are diagnosed with unexplained infertility. Ideally, the diagnosis would specifically identify couples with real but subtle defects in reproductive function that are not detected by available methods ***(Hart, 2003).***

Unexplained infertility refers to a diagnosis made in couples in whom standard investigations including semen analysis, tests of ovulation and tubal patency are normal. It has been suggested that the term unexplained infertility is unsustainable, as a condition such as endometriosis, tubal infertility; premature ovarian ageing and immunological infertility tend to be misdiagnosed as unexplained infertility ***(Siristatidis and Bhattacharya, 2007).***

The exact etiology of unexplained infertility is unknown, but several possibilities have been proposed. Subtle changes in follicle development, ovulation and luteal phase, as well as sperm concentration and motility at the lower end of normal range, have reported in some couples with unexplained infertility ***(Demir et al, 2007).***

The duration of infertility is probably the most important factor in eliminating fertile couples and subfertile couples with the best chance of conception from the unexplained infertility group. Fertile couples who have been unable to conceive by chance alone will eventually conceive, usually within 3 years. The duration of unexplained infertility must therefore be carefully considered in evaluating the results of empiric therapy. Such therapy will be more successful in a group with infertility of 1 year duration than in a group with infertility of more than 5 years duration ***(Akande et al., 2004).***

All treatments for unexplained infertility are empirical and all are designed, one way or another, to increase gamete density, bringing together more than the usual numbers of eggs and sperm in a timely way. Recommended treatments for unexplained infertility have included IUI, ovarian stimulation (clomiphene citrate, exogenous gonadotropins) to achieve superovulation of more than a single ovum, superovulation combined with IUI, and ART ***(Speroff, et al, 2011).***

The suggestion that women with unexplained subfertility may have an impaired uterine blood supply was first raised by Goswamy et al., (1988). A subsequent study also suggested that unexplained infertility may be associated with aberrant uterine artery blood flow and intermittently absent end-diastolic flow ***(Kurjak et al., 1991).***

Edi-Osagie et al. (2004) suggested that unexplained infertility is associated with a profound impairment of endometrial perfusion that might be amenable to treatment by perfusion enhancers.

In the absence of other evidence of endocrinological and endometrial histological and biochemical derangements, it is reasonable to suggest that endometrial perfusion impairments might be associated with the decrease in endometrial texture and might be a major contributor to reproductive failure in unexplained infertility ***(Raine-Fenning et al., 2004).***

Transvaginal color Doppler sonography was used to assess uterine and ovarian perfusion. This endometrial perfusion presents an accurate noninvasive assay of uterine receptivity that can be used to predict the successful outcome of implantation and to reveal unexplained infertility problems ***(yokota et al., 2000).***

Color Doppler sonography is a new method used to investigate changes during the menstrual cycle in infertile women. The correlation between cycles, pregnancy outcome and distribution of endomterial-subendomterial blood flow, as well as uterine arterial blood flow was investigated. The study concluded that endomterial-subendomterial blood flow distribution pattern assessed by transvaginal color Doppler, as well as good flow in uterine vessels, are necessary for good pregnancy rates. Thin endometrium, undetectable subendometrial blood flow and higher uterine arterial resistance, were associated with low pregnancy rate and poor outcome ***(Lillie et al., 2007).***

The advent of 3D power Doppler sonography has been a further corner stone in the field of reproductive medicine, as 3D imaging of relevant vessels and quantitative assessment of vessel density and perfusion within a specified area have become possible ***(Jinno et al., 2001)***.

So, there is an interesting question, whether blood changes play role in infertility? Could failure of adequate flow result in early pregnancy loss? It is possible that endometrial defects could be a hormonal or deficient based on inadequate vascular support. Could inadequate vascularization play a role in the luteal phase defect?