Summary

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.

Regulation of ovarian and uterine blood flow is an important aspect of reproductive physiology. Extensive changes in uterine vasculature also occur throughout the menstrual cycle.

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.

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. The small distance between the vaginal probe and the pelvic organs, supplies better resolution.

The objective of this study was to compare Doppler velocimetry and the flow velocity (RI, PI) of uterine and ovarian arteries during the midluteal

phase among patients with unexplained infertility and comparing with those of fertile women in attempt to discover any possible relationship between uterine and ovarian arteries blood flow and unexplained infertility.

Sixty women were included in this study divided into two groups as follows:

1. The study group: consisted of thirty (30) women with unexplained infertility.
2. The control group: consisted of thirty (30) of healthy fertile woman.

All of them had spontaneous cycle with average duration 28 days. None of them received any hormonal therapy or medical treatment during the 4 months prior to examination.

The study and control groups were matched for age, parity, and socioeconomic background. Women with a definite cause of their infertility were not included in this study. The exclusion those patients had been subjected to:

1. Complete history taking with emphasis on:
    a. Age of female.
    b. Regularity of menstrual cycle.
    c. Surgical intervention.
2. Seminal analysis to exclude male factors.

2. Full clinical examination including general, abdominal and local examinations.

3. Midluteal phase progesterone>10ng

5. Ultrasonography to exclude anatomical causes.

6. Hystrosalpingogram (HSG): for assessment of Fallopian tubes giving information about their patency and morphology. It is also recommended for the study of the uterine cavity.

All women had a 3D transvaginal pelvic ultrasound scan .The women were examined in the lithotomy position with an empty bladder in the midluteal phase (day21-23), of the cycle for assessment of ovarian and uterine vascularity.

We found that the utero-ovarian perfusion decreased in patients with unexplained infertility in comparable with the normal fertile control group. We suggested that decreased utero-ovarian blood flow may be a cause of unexplained infertility.

Conclusively, color Doppler imaging proved to be useful in diagnosis of unexplained infertility. It should be noted that CDI like all other imaging techniques has many variations regarding its sensitivity and specificity depending on practitioner’s experience and technology advancement.