# Introduction

Investigation of infertility is initiated after 1 year of attempts to achieve spontaneous pregnancy. During such an investigation, blood samples are taken concerning the basal hormone levels and the ovulatory function in the female. The male partner primarily only has a sperm count carried out ***(Edelstam et al., 2008).***

The Practice Committee of the American Society for Reproductive Medicine (ASRM) (2006) has published guidelines for a standard infertility evaluation. It includes a semen analysis, assessment of ovulation, a hysterosalpingogram, and if indicated, tests for ovarian reserve and laparoscopy.

When the results of a standard infertility evaluation are normal, practitioners assign a diagnosis of unexplained infertility. Although estimates vary, the likelihood that all such test results for an infertile couple are normal (i.e., that the couple has unexplained infertility) is approximately 15% to 30% ***(The Practice Committee of the ASRM, 2006a).***

If a completed investigation for infertility has not revealed any cause of infertility, clomiphene citrate and insemination is often tried as the first- line treatment (pregnancy rate: 8%) ***(Verhulst et al., 2006)*** or in combination with gonadotropins or gonadotropins alone ***(Hughes et al., 2001).*** IVF is usually offered as a second treatment option, but the most effective way of obtaining pregnancy for couples with unexplained infertility has not yet been clearly demonstrated ***(Guzick et al., 1998, pandian et al., 2005***).

Tubal flushing or perturbation has previously proved to be one way of increasing the chance of achieving pregnancy for couples with unexplained infertility and early stages of endometriosis. For couples undergoing an infertility investingation, Hysterosalpingo – Contrast – Sonography (Hycosy) is carried out in most cases. This procedure increased pregnancy rate during the following months ***(Johnson et al., 2005).***

When hystero – salpingo – graphy (HSG) was performed, there were two different contrast options: oil – based medium or a water soluble medium. The pregnancy rate after using the oil – based contrast medium has resulted in twice as many pregnancies compared with a water soluble medium ***(Rasmussen et al., 1991).*** In addition, in vitro studies of the oil – based contrast medium lipiodol have shown a reduction of sperm phagocytosis ***(Mikulska et al., 1994).***

Tubal flushing with lipiodol has been tried in a small, randomized clinical study on women with endometriosis and no spontaneous pregnancy for 3 years ***(Nugent et al., 2002).*** After perturbation with lipiodol, 30% of the patients achieved pregnancy compared with none of the patients randomized to expectancy. However, there are occasional reports of serious complications after HSG using oil – based contrast, presumably due to fat embolism ***(Uzun et al., 2004).***

Prepared spermatozoa from one healthy man were incubated in vitro with peritoneal fluid (collected during laparoscopy) with or without lignocaine. Samples from the incubations were studied daily and the number of viable spermatozoa were counted .The number of free spermatozoa was significantly increased when incubated in human peritoneal fluid supplemented with lignocaine. Thus lignocaine contributes to increasing the number of free spermatozoa and maintaining the possibility of fertilizing an oocyte ***(Edelstam et al., 1998).***

Compared with oil – based contrast medium which can remain intraperitoneally ***(Miyamoto et al., 1995),*** a local anaesthetic such as lignocaine is a well – tolerated drug and has the same capacity in vitro to reduce sperm phagocytosis ***(Edelstam et al., 1998).*** No complications were noted with low – dose lignocaine perturbations and no reproductive toxicological problems have been described ***(Ramazzotto et al., 1985).***

The effect of tubal flushing/perturbation during an insemination cycle is presumed to have two effects: mechanical and immunological. The mechanical effect is thought to be by opening the loose adhesions' around the fimbriae ***(Rasmussen et al., 1991).*** The in vitro observed reduced sperm phagocytosis is presumed also to have a similar immunological effect in vivo ***(Edelstam et al., 1998).***

Edelstam et al. (2001) evaluated perturbation with low – dose lignocaine for women with endometriosis and impaired fertility. An overall pregnancy rate of 30% was noted in contrast to natural pregnancy rate for women with endometriosis which was <5%.

In 2008, Edelstam et al. In a prospective study, randomized the patients during a clomiphene citrate stimulated cycle to either perturbation with lignocaine (1day before insemination ) or no perturbation before insemination. A total of 130 cycles were studied, 67 of which were randomized to pre – ovulatory perturbation and 63 to no perturbation treatment. There were 14.9% (n= 10) clinical pregnancies in the pertubated group compared with 3.2% (n= 2) in the group without pre- ovulatory perturbation ($p<0.05$). The absolute increase in pregnancy rate was 11.7%. Clarifying the effect of both perturbation & lignocaine in increasing the pregnancy rate in unexplained infertility cases.