

# THE EFFECT OF PRESENCE AND TREATMENT OF HYDROSALPINGES ON MISCARRIAGE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Aim:** To assess the effect of the presence and treatment of hydrosalpinx on the risk of miscarriage in women undergoing assisted reproductive treatment (IVF/ICSI)

## Background

Hydrosalpinx is a fluid-filled distension of the fallopian tube in the presence of distal tubal occlusion. The incidence of hydrosalpinx within infertile women is between 10 to 13% when diagnosed by ultrasound. This figure increases to 30% with the use of hysterosalpingogram or laparoscopy. The most common pathogen associated with tubal damage is chlamydia trachomatis. In vitro fertilization was first introduced as a method to overcome tubal infertility.

It has been widely established that the presence of hydrosalpinx is associated with lower implantation and pregnancy rates. Moreover, it has been demonstrated that treatment for hydrosalpinx can improve clinical pregnancy and live birth rate. However, the question of whether hydrosalpinx has a detrimental effect on an already established pregnancy (that is, when an intrauterine sac is seen on ultrasonography) has yet to be robustly reviewed. Furthermore, it is not known whether treatment would be beneficial in improving outcome in such women.

The aim of this review is to assess the presence and treatment of hydrosalpinx on the risk of miscarriage.

## Methods

**Background:** Hydrosalpinx is a considerable cause of tubal factor infertility and is known to have a detrimental effect on conception.

**Objectives:** To determine the association between the presence of hydrosalpinx and the risk of miscarriage.

**Search strategy:** Searches were conducted on MEDLINE, EMBASE, Cochrane Library and Web of Science (inception- August 2014) in all languages, together with reference lists of retrieved papers.

**Selection criteria:** Studies comparing miscarriage rate in women with hydroaslpinx with women without hydroaslpinx were included. Furthermore, studies reporting miscarriage in women who underwent treatment for their hydrosalpinx compared to no treatment were also included. Study selection was conducted independently by two reviewers. The Cochrane scale for randomised controlled trials and the Newcastle-Ottawa Quality Assessment Scale for cohort studies were used for quality assessment.

## Results

- 22 studies were identified, of which 6 were randomised controlled trials and the remainder were observational studies.
- All studies were in the IVF population. No studies were found for spontaneous pregnancies.
- Pooling of results from 14 observational studies showed a 64% relative increase in the risk of miscarriage in women with hydrosalpinx compared to women without hydrosalpinx (RR=1.64, 95% CI 1.27, 2.12,  $p=0.0002$ ).
- Pooling of results from 6 randomised controlled trials showed halving in the risk of miscarriage in women who had treatment for hydrosalpinges when compared to women with untreated hydrosalpinx (RR=0.46, 95% CI 0.23- 0.92,  $p=0.03$ ).
- Pooling of results from 5 observational studies showed halving in the risk of miscarriage in women who had treatment for hydrosalpinges in comparison to women with untreated hydrosalpinx (OR=0.50, 95% CI 0.34- 0.72,  $p=0.0002$ ).

## Conclusions

- There is evidence to suggest that the presence of hydrosalpinges increases the risk of miscarriage in IVF/ICSI pregnancies.
- Treatment with salpingectomy may halve the risk of miscarriage in women with hydrosalpinx.
- These findings have potential implications on the investigation and management of women with a history of recurrent miscarriages.

