A postal survey of hydrosalpinx management prior to IVF in the United Kingdom

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BACKGROUND: In the last decade, numerous studies have demonstrated concern about the presence of hydrosalpinx and its management in patients undergoing IVF. We evaluated the current management of hydrosalpinx prior to IVF treatment in the UK. METHODS: A total of 117 postal survey, anonymous, sealed questionnaires were sent to all IVF centres in the UK, to determine the policy for the management of hydrosalpinx in infertile women prior to IVF treatment. RESULTS: There were 88 (75%) responders, of which 80 (91%) indicated that they discussed the effect of hydrosalpinx on IVF outcome. Ten (12%) units did not recommend treatment of hydrosalpinx prior to IVF treatment, while 30 (36%), 27 (33%) and 16 (19%) recommended treatment weakly, strongly and very strongly respectively. The treatment options offered by clinicians were laparoscopic salpingectomy (75%), open salpingectomy (45%), salpingostomy (40%), proximal tubal occlusion (34%), transvaginal sonographic (TVS) aspiration during oocyte collection (23%) and TVS aspiration before oocyte collection (10%). The frequency of use varied from one option of treatment to another. Only 28% of the responders had a protocol or guidelines for the management of hydrosalpinx. CONCLUSIONS: More attention should be given to patients with hydrosalpinx prior to IVF treatment and patients should be counselled about the negative effect of hydrosalpinx on IVF outcome. There is a wide variation in the management of hydrosalpinx prior to IVF treatment in the UK and many treatment options may be questionable, as they are not yet based on evidence.

Key words: hydrosalpinx/IVF/survey

Introduction
Many reports have confirmed that the presence of a hydrosalpinx significantly impairs IVF outcome (Strandell et al., 1994; Vandromme et al., 1995; Wainer et al., 1997; Strandell et al., 1999). Despite the growing knowledge about the presence of hydrosalpinges and its negative effects on IVF outcome, there has been no proper evaluation of the management of hydrosalpinx prior to IVF apart from the study by Strandell et al. (1999). Their multicentre, prospective, randomized control trial concluded that women with ultrasonically visible hydrosalpinges would benefit from salpingectomy prior to IVF treatment. The availability of many other simple methods for the treatment of hydrosalpinges (salpingostomy, proximal tubal ligation and ultrasound-guided transvaginal aspiration of hydrosalpinx fluid) have become popular options in practice, although supporting evidence has come mainly from retrospective studies (Aboullghar et al., 1990; Murray et al., 1998; Surrey et al., 2001).

The aim of this study was to determine the current techniques of hydrosalpinx management prior to IVF and the frequency of their use in the UK.

Materials and methods
All Human Fertilisation and Embryology Authority (HFEA)-registered IVF centres in the UK were surveyed by first-class mail, anonymous, sealed questionnaires asking for their management of hydrosalpinges in infertile women prior to IVF treatment (Appendix I). Postage-paid return envelopes were provided. The clinicians were asked to assess their attitudes to hydrosalpinx management and how frequently each treatment modality was used. The frequency of use was assessed by a score of 1–4, as follows: 1 = not used; 2 = used infrequently; 3 = used frequently; 4 = used very frequently (see Appendix 1).

A total of 117 questionnaires were sent to the HFEA-registered assisted conception units in the UK. The same questionnaires were sent again to the non-responders. In all, 88 units (75%) replied to the letters up to 10 weeks after the questionnaires had been mailed. Five (4%) of the responders were excluded because IVF was not available at that time in their units.

Results
Most of the responders had 10–20 years of experience in infertility. Seventy-seven per cent were at consultant grade. In spite of sending three questionnaires to each unit to get a wider view on this subject, only one unit returned two completed
questionnaires. Eighty (91%) out of 88 responders indicated that they did discuss the effect of hydrosalpinx on the IVF outcome with prospective patients. Ten units (12%) did not recommend treatment of hydrosalpinges prior to IVF treatment, while 30 (36%), 27 (33%) and 16 (19%) recommended treatment weakly, strongly and very strongly respectively. Twenty-eight per cent had a protocol or guidelines for the management of hydrosalpinx. The rest of the survey results are summarized in Tables I and II.

### Discussion

The negative effect of untreated hydrosalpinx on IVF outcome is of immense interest to clinicians and this may explain the high return rate (75%), as similar questionnaire studies directed at gynaecologists in the UK have reported poor response rates (≤55%) (Daniels et al., 2000; Jones et al., 2002).

Despite our current knowledge of the negative impact of hydrosalpinx on IVF outcome, we were very surprised to find that 12% of fertility centres in UK did not discuss the deleterious effect of untreated hydrosalpinx with their patients (Strandell et al., 1994; Vandromme et al., 1995). Also, 36% of the centres weakly recommended treatment of the hydrosalpinges before IVF treatment.

Table I demonstrates a wide variation in the treatment modalities offered to patients. Many of these options concerning the disposal of hydrosalpinx fluid have not been properly evaluated with the exception of laparoscopic salpingectomy, which has been subjected to randomized trial (Strandell et al., 1999).

### Table I. Treatment options offered by the clinician

<table>
<thead>
<tr>
<th>Treatment option</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laparoscopy/salpingectomy</td>
<td>66 (75)</td>
</tr>
<tr>
<td>Laparotomy/salpingectomy</td>
<td>40 (45)</td>
</tr>
<tr>
<td>Salpingostomy</td>
<td>35 (40)</td>
</tr>
<tr>
<td>Proximal tubal occlusion</td>
<td>30 (34)</td>
</tr>
<tr>
<td>Ultrasound-guided aspiration</td>
<td></td>
</tr>
<tr>
<td>during oocyte collection</td>
<td>21 (23)</td>
</tr>
<tr>
<td>before oocyte collection</td>
<td>9 (10)</td>
</tr>
</tbody>
</table>

As each clinician offered more than one treatment modality, the numbers and percentages exceed the total number of clinicians.

Laparoscopic salpingectomy (75%) was the most popular treatment option offered by the clinicians, followed by open salpingectomy (45%), salpingostomy (40%), proximal tubal occlusion (34%) and transvaginal sonographic hydrosalpinx aspiration either before or during oocyte retrieval (33%).

We were amazed that 45% of clinicians would still perform open salpingectomy. The possible explanation for this could be the lack of training in endoscopic surgery and/or that patients with tubal disease may have significant pelvic adhesions necessitating open surgery.

The Scandinavian multicentre randomized controlled trial concluded that preventive laparoscopic salpingectomy in patients with hydrosalpinges, especially if visible on ultrasound scan, improves outcome (Strandell et al., 1999). A Cochrane review by Johnson, which included the Scandinavian study, confirmed that the odds of pregnancy, ongoing pregnancy and live birth were increased with laparoscopic salpingectomy for hydrosalpinges prior to IVF (Johnson et al., 2002).

Further studies have also shown that prophylactic salpingectomy has a positive effect on the IVF outcome (Kassabji et al., 1994; Vandromme et al., 1995; Shelton et al., 1996; Meyer et al., 1997; Murray et al., 1998). Furthermore, a prospective randomized controlled trial showed that bilateral salpingectomy prior to IVF treatment tends to increase the implantation and pregnancy rates (Dechaud et al., 1998). However, laparoscopic salpingectomy or open salpingectomy is not always a simple procedure, especially when there are dense pelvic adhesions. In addition, salpingectomy could have a negative effect on the ovarian blood flow and may subsequently reduce ovarian response to gonadotrophin stimulation (Lass et al., 1998; Dechaud and Hedon, 2000).

In view of the above, many clinicians adopt alternative, less invasive options such as proximal tubal ligation, salpingostomy and vaginal aspiration of the hydrosalpinx fluid (HSF).

Salpingostomy can be performed using laparotomy or laparoscopy. Laparoscopic salpingostomy is a simple procedure and does not require great surgical experience. The low morbidity rate and short hospital stay of laparoscopic salpingostomy make it a favourite option. It was offered as a treatment option by 40% of the responders but only 12% of them used it frequently. A high risk of ectopic pregnancy is a disadvantage of this procedure (Lavy et al., 1987), with a good probability of achieving an intrauterine pregnancy. Murray

### Table II. Frequency of use of different modalities for management of hydrosalpinx

<table>
<thead>
<tr>
<th>Treatment option</th>
<th>Not used</th>
<th>Used infrequently</th>
<th>Used frequently</th>
<th>Used very frequently</th>
<th>Abstained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laparoscopy/salpingectomy (%)</td>
<td>17 (20)</td>
<td>20 (23)</td>
<td>23 (26)</td>
<td>21 (24)</td>
<td>2</td>
</tr>
<tr>
<td>Laparotomy/salpingectomy (%)</td>
<td>33 (33)</td>
<td>19 (18)</td>
<td>14 (24)</td>
<td>11 (17)</td>
<td>6</td>
</tr>
<tr>
<td>Salpingostomy (%)</td>
<td>49 (56)</td>
<td>17 (20)</td>
<td>10 (12)</td>
<td>4 (5)</td>
<td>3</td>
</tr>
<tr>
<td>Tubal occlusion (%)</td>
<td>48 (55)</td>
<td>16 (18)</td>
<td>9 (10)</td>
<td>6 (7)</td>
<td>4</td>
</tr>
<tr>
<td>Ultrasound-guided hydrosalpinx aspiration before oocyte collection (%)</td>
<td>67 (77)</td>
<td>5 (6)</td>
<td>3 (3)</td>
<td>1 (1)</td>
<td>7</td>
</tr>
<tr>
<td>Ultrasound-guided hydrosalpinx aspiration during oocyte collection (%)</td>
<td>53 (61)</td>
<td>10 (12)</td>
<td>7 (8)</td>
<td>7 (8)</td>
<td>6</td>
</tr>
</tbody>
</table>

As each clinician offered more than one treatment modality, the numbers and percentages exceed the total number of clinicians.
et al. (1998) in a retrospective study concluded that no single type of surgical treatment (salpingectomy, neosalpingostomy or proximal occlusion) is superior in terms of pregnancy outcome.

Laparoscopic proximal tubal occlusion was offered as a treatment option by 34% of the clinicians. It is an effective procedure and can be performed either with Fallopean clip or bipolar proximal tubal occlusion. Surrey and Schoolcraft (2001) in a retrospective study showed that laparoscopic salpingectomy or proximal tubal occlusion has a similar outcome in women undergoing IVF treatment. Proximal tubal occlusion combined with distal fenestration can be performed in large hydrosalpinx or in cases with technical difficulties due to extensive adhesions (Lass, 1999; Strandell, 1999).

Vaginal ultrasound-guided aspiration of HSF is the simplest method of treating hydrosalpinx. This treatment option had the lowest frequency in our survey (vaginal HSF aspiration during and before oocyte collection was offered by 23 and 10% of clinicians respectively). There is limited literature (only a few retrospective studies) on this intervention. Van Voorhis et al. (1998) in a retrospective study reported that aspiration of HSF at the time of oocyte collection significantly improved IVF outcome, although Aboulghar et al. (1990) found that there was no improvement in the outcome when the HSF was aspirated a month before ovarian stimulation. Previous reports have shown that the risk of infection associated with the puncture of hydrosalpinx is rare with antibiotic cover (Strandell, 2000). One other concern with aspiration is that hydrosalpinges refill within 48 h, and the leakage of fluid into the uterine cavity may disturb the interaction between the embryos and endometrial surface, resulting in failed implantation (Bloechle et al., 1997). However, this treatment option has the obvious advantages of being simple, less invasive and cheap.

There is evidence in medical practice that the availability of clinical guidelines and protocols improves the quality of patient care (Grimshaw and Russell, 1993). The majority of responders (72%) stated that they did not have protocols or guidelines in their unit for hydrosalpinx management. National or local guidelines and protocols may improve management of the patient with hydrosalpinges prior to IVF.

In conclusion, there is a wide variation in practice and use of different options in the management of hydrosalpinges. More attention should be given to the negative effect of hydrosalpinges on IVF outcome and all clinicians should counsel patients accordingly. Preventive salpingectomy prior to IVF treatment is the most substantiated treatment modality and should be recommended, especially if hydrosalpinges are visible on ultrasound. There is a great need for standardized national guidelines and local protocols for hydrosalpinx management to optimize the successful outcome in patients undergoing IVF treatment. These guidelines should cover in details the importance of diagnosis of hydrosalpinges and outline the treatment options according to the available evidence and the patient’s suitability. We would also like to suggest more research work (prospective randomized trials) on the value of other treatment modalities prior to IVF treatment.

Appendix I. Questionnaire used for hydrosalpinx management in IVF centres in the UK

Questionnaire No.:

Hydrosalpinx management questionnaire

1. How long have you been practising infertility? … (in years).
2. What is your status?
   ( ) Consultant, ( ) Research Fellow, ( ) Clinical assistant, ( ) Sub-specialist Trainee, ( ) SPR 1, ( ) SPR 2, ( ) Staff Grade.
3. Do you discuss with your patients (if relevant) the effect of hydrosalpinges on the IVF outcome?
   ( ) Yes, ( ) No.
4. How strongly do you recommend treatment of the hydrosalpinges before commencing IVF treatment in order to improve IVF success rates?
   ( ) Not at all ( ) Weakly ( ) Strongly ( ) Very strongly
5. What kind of treatment do you offer to your patients? (Tick all that apply)
   ( ) Laparotomy/salpingectomy
   ( ) Laparoscopic salpingectomy
   ( ) Salpingostomy
   ( ) Proximal tubal occlusion
   ( ) Ultrasound-guided hydrosalpinx fluid aspiration before egg collection
   ( ) Ultrasound-guided hydrosalpinx fluid aspiration during egg collection.
   If you do hydrosalpinx aspiration, do you give prophylactic antibiotics?
   ( ) Yes, ( ) No, ( ) Other.
6. How often do you offer the following treatment modalities? Please give a score 1–4, with 1 indicating no use and 4 indicating very frequently used.
   Laparotomy/salpingectomy 1; 2; 3; 4.
   Laparoscopic salpingectomy 1; 2; 3; 4.
   Salpingostomy 1; 2; 3; 4.
   Tubal occlusion 1; 2; 3; 4.
   Ultrasound-guided hydrosalpinx fluid aspiration before egg collection 1; 2; 3; 4.
   Ultrasound-guided hydrosalpinx fluid aspiration during egg collection 1; 2; 3; 4.
   Other please specify ………………………………. 1; 2; 3; 4.
7. Do you have a protocol or guideline in your unit to guide you for the management of hydrosalpinges?
   ( ) Yes, ( ) No.

References


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