PLACE OF SALPINGECTOMY IN 2014

Tubal occlusion: the best alternatives?

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Tubal occlusion: the best alternatives?

Disclosure of Interest: Nothing to Disclose

Freestanding Palagi

Florence, Italy
Tubal occlusion: the best alternatives?
Tubal occlusion: the best alternatives?

- is performed intentionally to prevent pregnancy

- leads to improved outcomes before IVF
  - occurs due to disease conditions and results in involuntary infertility
Tubal occlusion: the best alternatives?

- Laparotomy Mini-laparotomy
  - 1924, Irving
  - 1930, Pomeroy- Parkland
  - 1940, Uchida

- Vaginal posterior colpotomy

- Laparoscopy
  - 1960, Semm-Frankenheim
  - 1973, Hulka
  - 1981, Filshie

- Hysteroscopy
  - 2002, Essure
  - 2009, Adiana

Methods for accessing the fallopian tubes and preventing pregnancy
Since the advent of IVF, reconstructive tubal surgery is becoming a lost skill.

Tubal occlusion: the best alternatives?

- salpingostomy
- anastomosis
- implantation
Tubal occlusion: the best alternatives?

Methods for treating hydrosalpinx and improving outcomes before IVF

- Laparoscopic salpingectomy
- Needle aspiration of fluid
- Laparoscopic salpingoplasty
- Laparoscopic proximal tubal occlusion

- Hysteroscopic proximal tubal occlusion
  - 2002, Essure
  - 2009, Adiana
IR, CPR, and OPR have been evaluated in randomized controlled trials (RCT’s) no significant differences in implantation and pregnancy rates were found.

Tubal occlusion: the best alternatives?

Proximal tubal occlusion and salpingectomy result in similar improvement in in vitro fertilization outcome in patients with hydrosalpinx.

Antonios Kontoravdis, M.D., Evangela Makrakis, M.D., Konstantinos Pountos, M.D., Dimitrios Botsis, M.D., Efthimios Deligeorgiou, M.D., and George Creatas, M.D.

**TABLE 3**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Groups</th>
<th>A vs. B</th>
<th>A vs. C</th>
<th>B vs. C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>P</td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td>No. of transfers</td>
<td>45</td>
<td>47</td>
<td>14</td>
<td></td>
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<tr>
<td>Implantation rate (%)</td>
<td>19.5</td>
<td>24.8</td>
<td>5.6</td>
<td>.2</td>
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<tr>
<td>Clinical-pregnancy rate (%)</td>
<td>44.4</td>
<td>55.3</td>
<td>14.3</td>
<td>.2</td>
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<tr>
<td>Ongoing-pregnancy rate (%)</td>
<td>37.8</td>
<td>48.9</td>
<td>7.1</td>
<td>.2</td>
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<tr>
<td>Abortion rate (%)</td>
<td>4.4</td>
<td>6.4</td>
<td>7.1</td>
<td>.5</td>
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<tr>
<td>Ectopic-pregnancy rate (%)</td>
<td>2.2</td>
<td>0.0</td>
<td>0.0</td>
<td>.5</td>
</tr>
</tbody>
</table>

Note: OR = odds ratio; CI = confidence interval.

Ongoing pregnancy rate (34%) after laparoscopic salpingectomy or tubal occlusion is twofold higher than in controls (17%).

The 17% rate difference implies that for every six (95% CI, 3–9) women with hydrosalpinges, one more ongoing pregnancy will be achieved if salpingectomy or tubal occlusion is performed before IVF.

Tubal occlusion: the best alternatives?

Methods for treating hydrosalpinx

- Laparoscopic salpingectomy
- Laparoscopic Proximal tubal occlusion

**Disadvantages**
- More than 24 hours of Hospitalization
- General Anesthesia
- One week sick leave from work
- Incisions and abdominal scars

**Complications**
- Linked to general anesthesia
- Linked to surgical technique: 1 to 2%
  - Organ and vessel injury
- Death rate: 2-5 per 100,000 cases
Tubal occlusion: the best alternatives?

The procedure has been associated with an impairment of the ovarian blood flow as a result of the transection of collateral vessels, which might result in a subsequently reduced efficacy of ovarian stimulation.
Tubal occlusion: the best alternatives?

Ovarian reserve testing before and after laparoscopic tubal bipolar electrodesiccation and transection

Cihangir Mutlu Ercan, Mehmet Sakinci, Hakan Coksuera, Ugur Keskin, Serkan Tapan, Ali Ergun

Conclusions: Short-term follow-up study results revealed a slight but non-significant change in the current ovarian reserve markers, especially in the AMH levels.

Impact of tubal ligation on ovarian reserve as measured by anti-Müllerian hormone levels: a prospective cohort study

Ana Luiza Berwanger da Silva, Camila da Ré, Cristine Dietrich

Conclusions: This study suggests that ovarian reserve is not altered by TL.
Tubal occlusion: the best alternatives?

Methods for treating hydrosalpinx and improving outcomes before IVF

- Laparoscopic salpingectomy
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Tubal occlusion: the best alternatives?

polymer matrix Adiana® system
- 1995 animal studies
- 1998 hysterectomy studies
- 2002 November pivotal trial
- 2009 July FDA authorized for sale

micro-insert Essure® system
- 1995 animal studies
- 1998 hysterectomy studies
- 2000 pivotal trial
- 2002 November FDA authorized for sale

Hologic has resolved litigation with Conceptus concerning patent infringement claims
Hologic has decided to discontinue the manufacturing, sales and marketing of its Adiana system from May 18th, 2012
Tubal occlusion: the best alternatives?

- **external catheter**
- **outer coil:** dynamic - expanding - elastic in Nitinol (Nickel & Titanium alloy)
- **inner coil:** flexible stainless steel
- **PET** (Polyethylene fibers) wound in and around

Total Length = 40 mm
Expanded Implant Ø: 1.8 mm
Tightly Wound Configuration Ø: 0.8 mm
Ideal micro-insert location is when the inner coil with PET fibers crosses the utero-tubal junction.
Mechanism of Action
Fibers elicit a tissue response
Peak between 2-3 weeks
occlusion is achieved as a result of a tissue in-growth into and around the Micro-Insert firmly anchored after 3 month

Tubal occlusion: the best alternatives?
Tubal occlusion: the best alternatives?

- Outpatient setting/office-based
- Special equipment
  - 5 mm hysteroscope with 5 FR operating channel
  - Endoscopic rack
  - Essure micro-inserts
- Vaginoscopy approach
  - Warm saline 37\°
  - Low pressure 60-70
  - Medium flow 250-300 ml
- Continuous pulse oximeter
- No general/local anesthesia
Tubal occlusion: the best alternatives?

1. Advance catheter’s black positioning marker to tubal ostium
2. Retract the insertion catheter (external catheter)
3. Gold band slightly outside the ostium
4. Release the implant (3 to 8 coils indicates the ideal position)

FDA May 2010 post-Approval Study

Bilateral placement 96.9%
Average time 9 minutes
Effectiveness 99.80%
Tubal occlusion: the best alternatives?
# Tubal occlusion: the best alternatives?

<table>
<thead>
<tr>
<th>Study ID</th>
<th>total</th>
<th>hydrosalpingx</th>
<th>placement</th>
<th>IVF</th>
<th>Deliv</th>
<th>Abortion</th>
<th>pregnancy/ET</th>
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<td>B/L U/L</td>
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<td>Galen, 2011</td>
<td>20</td>
<td>12 8</td>
<td>12 8</td>
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<td>10 3</td>
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<td>3</td>
<td>4</td>
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<tr>
<td>Matorras, 2013</td>
<td>15</td>
<td>9 6</td>
<td>9 6</td>
<td></td>
<td>4</td>
<td>1</td>
<td>5/21</td>
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<tr>
<td>Franchinii 2014</td>
<td>12</td>
<td>8 4</td>
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<td></td>
<td>6</td>
<td>0</td>
<td>6/8</td>
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<tr>
<td><strong>Totale</strong></td>
<td><strong>92</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>41(44.5%)</strong></td>
</tr>
</tbody>
</table>
Tubal occlusion: the best alternatives?

Essure® for management of hydrosalpinx prior to in vitro fertilisation—a systematic review and pooled analysis

P Arora, RS Arora, D Cahill

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Department of Medical Oncology, Max Super Speciality Hospital, New Delhi, India
Academic Unit of Obstetrics and Gynaecology, St Michael's Hospital, Bristol, UK

Correspondence: P Arora, 19 Wet Earth Green, Swinton, Manchester M37 8AL, UK. Email parora@doctors.org.uk

Accepted 30 August 2013. Published Online 3 January 2014.

Author's conclusions Essure® appears to be an effective option for management of hydrosalpinx in women before IVF although evidence from a randomised controlled clinical trial is lacking.
Tubal occlusion: the best alternatives?

DESH (Dutch Essure® versus Salpingectomy for Hydrosalpinx) Trial

prospective randomized trial to evaluate and to compare the impact of hysteroscopic Essure® intratubal device placement and laparoscopic salpingectomy on IVF-ET outcomes of patients with hydrosalpinx

primary objective
is to evaluate and compare the IVF-ET outcomes

secondary objective
is to evaluate ovarian reserve through measurements of early follicular phase serum FSH & AMH levels and antral follicle counts presurgery and 3 months postsurgery in both study groups
Unilateral or bilateral hydrosalpinges may exert a deleterious effect on IVF-ET cycle outcome.

Prophylactic salpingectomy has been shown to increase IVF-ET cycle pregnancy and implantation rates.

Surgical treatment should be considered for all women with hydrosalpinges prior to IVF-ET treatment.

Tubal occlusion: the best alternatives?

Essure transcervical hysteroscopic proximal tubal occlusion

- Represents a significantly less invasive approach
- Requires less operating time
- Performs in office setting without local or general anesthesia
- Avoid risk of an interstitial pregnancy after embryo transfer
- Avoid damage to collateral vessel of ovary
- Eliminating retrograde flow of hydrosalpingeal fluid into the endometrial cavity
- Increase IVF-ET cycle pregnancy and implantation rates
- in the setting of a unilateral hydrosalpinx, unilateral occlusion can contribute to spontaneous intrauterine pregnancy
Tubal occlusion: the best alternatives?

potential pitfalls

Essure hysteroscopic proximal tubal occlusion

- Nickel embryotoxic effect
- Trailing of coils negative implantation effect
- Possibility of creation of a “giant hydrosalpinx”
- Fear of Essure dislocation after pregnancy
Freestanding Palagi
Florence

Any questions?

I wait you soon