Adhesions and endometriosis: challenges in subfertility management

(An expert opinion of the ANGEL-The ANti-Adhesions in Gynaecology Expert Panel-group)

R. L. De Wilde1 · J. Alvarez2 · H. Brölmann3 · R. Campo4 · Y. Cheong5 · P. Lundorff6 · L. Pawelczyk7 · H. Roman8 · A. di Spiezio Sardo9 · M. Wallwiener10

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Abstract There is molecular evidence that endometriosis has a negative impact on the ovaries, although the exact pathophysiology concerning endometriosis-associated subfertility is not known. The negative impact on the tubo-ovarian unit can be directly by distorting the anatomy, indirectly by invoking inflammation or by oxidative damage with poorer-quality oocytes. Endometriosis even seems to have a negative effect on pregnancy outcome after in vitro fertilization.

Keywords Adhesions · Endometriosis · Subfertility management · Adhesion prophylactic agents

Endometriosis is a common, chronic and enigmatic disease. Its exact prevalence is unknown, but up to 10 % of the general female population and up to 50 % of subfertile women could be affected [1, 2]. Women complaining of infertility are six to eight times more likely to have endometriosis compared to fertile women [3]. There is molecular evidence that endometriosis has a negative impact on the ovaries [4], although the exact pathophysiology concerning endometriosis-associated subfertility is not known. The negative impact on the tubo-ovarian unit can be directly by distorting the anatomy [5], indirectly by invoking inflammation [6, 7] or by oxidative damage [8] with poorer-quality oocytes [9]. Endometriosis even seems to have a negative effect on pregnancy outcome after in vitro fertilization [10, 11].

Endometriosis, due to its inflammatory nature, is an adhesiogenic disease. Its recurrent nature means that repeated surgeries are often required, which leads to further adhesion formation [12]. For these reasons, adhesions and endometriosis are two connected entities and adhesion prevention in endometriosis treatment should be considered important [13]. The economic burden of endometriosis is heavy (0.8–12.5 billion euros per country and year in Europe) and comparable to other chronic diseases such as diabetes [14].

1 Clinic of Gynecology, Obstetrics and Gynecological Oncology, University Hospital for Gynecology, Pius-Hospital Oldenburg, Medical Campus University of Oldenburg, Oldenburg, Germany
2 Hospital Universitario Infantia Sofia, Paseo de Europa, 34, 28702 San Sebastian de Los Reyes, Spain
3 Department of Obstetrics and Gynecology, VU University, 1081 Amsterdam, The Netherlands
4 Leuven Institute for Fertility and Embryology (LIFE), Tiensevest 168, 3000 Louvain, Belgium
5 Human Development and Health Unit, University of Southampton and Complete Fertility Centre, Southampton, UK
6 Department of Obstetrics and Gynecology, Privathospitalet Molholm, 7100 Vejle, Denmark
7 Division of Infertility and Reproductive Endocrinology, Poznan University of Medical Sciences, Poznan, Poland
8 Hopitaux De Rouen, Clinique Gynecologique et Obstetricale, 1 Rue Germont, 76031 Rouen Cedex, France
9 Studio medico, via San Giacomo dei Capri 63, Naples, Italy
10 Department of Obstetrics and Gynecology, University Clinic Heidelberg, 69120 Heidelberg, Germany
Endometriosis has significant negative impact on social, familial, sexual, educational and professional aspects of the daily life [14–16]. The pain, psychological and social dysfunction subsequently impairs the quality of life and decreases professional productivity [17]. As there is no clear cause or cure, the disease is likely to be chronic and recurrent. The potential impact on sexuality and fertility has a continuous negative effect on partnership.

Symptomatic hormonal therapies and analgesics can be effective in endometriosis-associated pain [18], but there is no evidence that these treatments improve fertility. In fact, many of those hormone-influencing medical treatments inhibit ovulation. In clinical practice, surgical procedures such as laparoscopy are required to confirm the diagnosis and to surgically resect the lesions. This procedure can be useful in reducing pain [18] and improving fertility in stage I or II [19], even in stage III or IV [20].

Managing endometriosis requires consideration of one of the most crucial problems experienced in gynaecology today: adhesion formation. Adhesions adversely affect fertility by influencing adnexal anatomy and gamete- as well as embryo transport [21], and surgery in endometriosis is thought to be a major cause of adhesion formation. Surgically-induced adhesion formation awareness [22] and the knowledge of adhesion-reducing standards are only mainly seen by minimal-access surgeons [23]. The ESGE Adhesions Research Working Group [24] and the European Society of Human Reproduction and Embryology [25] recommend the consistent use of an anti-adhesion standard and eventually adhesion prophylactic agents during endometriosis surgery [18] on a expert opinion level base of evidence.

In a society with growing health care costs and limited resources, health professionals, policy makers and insurance companies need to pay attention to the consequences of endometriosis and the role played by adhesions [26]. This knowledge should be taken into account to better assist women suffering from endometriosis and in coping with the effects of the disease on their daily lives.

Because endometriosis is under-diagnosed, under-reported and under-researched, the pathophysiology itself and the concurring disease-related adhesion formation lead to fertility changes making a global future plan necessary to improve endometriosis-, adhesions- and the related subfertility outcomes.

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The ANGEL Group is a panel of European gynaecological surgeons focused on identifying opportunities to reduce the incidence of adhesions through collective expert proposals on actions to take to prevent adhesions.

The members of the ANGEL Group are: Dr. Julio Alvarez (Spain), Prof. Hans Brölmann (Netherlands), Dr. Rudi Campo (Belgium), Dr. Ying Cheong (United Kingdom), Prof. Philippe Koninckx (Belgium), Prof. Per Lundorff (Denmark), Prof. Leszek Pawelczyk (Poland), Prof. Horace Roman (France), Dr. Attilio di Spiezo Sardo (Italy), Dr. Markus Wallwiener (Germany), Prof. Rudy Leon De Wilde (Germany).

Compliance with ethical standards

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