A: Question
Is there any evidence for an adverse effect of progestogens on a meningioma, in particular any effect from Mirena?

B: Response

Observations from epidemiological, clinical and molecular studies have led to the suggestion that exogenous hormonal therapy may be a risk factor for meningioma. The incidence of meningioma is two to three times greater in women than in men, suggesting that hormones could influence the development of meningioma. Increased tumour growth rates have been reported during pregnancy [1]. Molecular studies show that progesterone and oestrogen receptors are present in approximately 70% and 30% of meningiomas, respectively [2,3]. Proliferation of human meningioma cell lines after exposure to oestrogen and progesterone has also been observed [4]. However, the significance of these findings is unclear.

No literature was found that relates specifically to the effects of progestogen-only contraception in women with meningioma.

We identified studies examining the risk of meningioma and the use of oral contraceptives, the results of which were inconsistent. In a large European cohort study [5] of 276,212 women with a mean of 8.4 years of follow up, there were 194 cases of meningioma. The study found that among pre-menopausal women, current use of oral contraceptives was associated with an increased risk of meningioma (HR 3.61, 95% CI 1.75-7.46). Previous studies had reported null or inverse associations. The most recent meta-analysis conducted in 2013 by Qi et al. [6] which looked at 7 retrospective studies and 5 prospective studies (including the European cohort study) reported the cumulative risks associated with ever OC use of 0.93 (95% CI=0.83-1.03). The authors concluded that OC did not significantly contribute to the risk of developing meningioma.

The CEU recommends that there is insufficient evidence to make a firm statement on whether women with meningiomas can safely use any form of hormonal contraception, including a levonorgestrel releasing intra-uterine system (LNG-IUS). In general, because of the suggested causal association with hormones, any hormonal method of contraception should be used with caution and non-hormonal therapies would be preferred. However in the
presence of other potential non-contraceptive benefits with a LNG-IUS this risk benefit balance might change and would require discussion with the individual woman.

C: Evidence-Based Medicine Question (which guided our literature search strategy)

**Population:** Women with meningioma

**Intervention:** Hormonal contraceptives/ Progestogen-only contraceptives

**Outcome:** Safety/ appropriateness

D: Information Sources

The CEU searched the following sources in developing this Member’s Enquiry Response

<table>
<thead>
<tr>
<th>Source Searched</th>
<th>Information Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing FSRH and RCOG guidance</td>
<td>None</td>
</tr>
<tr>
<td>The National Guidelines Clearing House</td>
<td>None</td>
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<tr>
<td><strong>The United Kingdom Medical Eligibility Criteria for Contraceptive Use (2009)</strong></td>
<td>See below</td>
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<tr>
<td>The World Health Organization Medical Eligibility Criteria for Contraceptive Use (2008)</td>
<td>See below</td>
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<tr>
<td>The World Health Organization Selected Practice Recommendations for Contraceptive Use (2008)</td>
<td>See below</td>
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<tr>
<td>The Cochrane Library</td>
<td>None</td>
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<tr>
<td>MEDLINE and EMBASE from 1996 to 2015</td>
<td>See below</td>
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</tbody>
</table>

E: References


The advice given in this Member’s Enquiry Response has been prepared by the FSRH Clinical Effectiveness Unit team. It is based on a structured search and review of published evidence available at the date of preparation. The advice given here should be considered as guidance only. Adherence to it will not ensure a successful outcome in every case and it may not include all acceptable methods of care aimed at the same results. This response has been prepared as a service to FSRH members, but is not an official Faculty guidance product; Faculty guidance is produced by a different and lengthier process. It is not intended to be construed or to serve as a standard of medical care. Such standards are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge advances. Members are welcome to reproduce this response by photocopying or other means, in order to share the information with colleagues.

Enquiry response by EC
Checked by AEG/SH