The bitter pill

Lucy Cox

A FRENCH PILL SCARE

The opinion of Marion Larat is that “nobody, but nobody should take the third- and fourth-generation pills”.1 This view is not surprising as she suffered a devastating stroke at the age of 18 years.2 A subsequent enquiry linked her cerebral vascular accident to Méliane®,3 a 20 μg pill containing gestodene that she had been prescribed for contraception. In December 2012, Marion Larat successfully sued the manufacturer, Bayer, and the French drug regulatory board Agence national de sécurité du médicament et des produits de santé (ANSM) for damages. Her case was widely publicised in the media and 30 similar lawsuits soon followed.

In January 2013, the Minister for Health, Marisol Touraine, announced that France’s social security system would no longer reimburse prescriptions for third- and fourth-generation pills.4 At the time around half of the five million French women on the combined pill were taking such pills,5 which cost more to the state than older formulations. Plans were made to strip midwives and nurses of their pill-prescribing powers.5 The ANSM advised that third- and fourth-generation pills should never be used as first-line contraception and should only be prescribed if an older formulation had not been tolerated.5 The ANSM then referred the matter to the European Medicines Agency (EMA) for further investigation.

THE PILL CONTROVERSY

Since the introduction of the combined oral contraceptive pill (COC) in the 1960s, an association between ethinylestradiol (EE) and venous thromboembolism (VTE) has been apparent. The amount of EE in pills has lessened over time to reduce thrombotic potential as well as estrogenic side effects. Older pills contain androgenic side effects. Newer formulations have been developed that contain less androgenic progestogens and so aim for better tolerability.

Progestogens have been arbitrarily categorised into ‘generations’ based on their chemical structure and timing of introduction onto the market. This is neither a standardised nor a scientific system, which makes interpretation of data more challenging. Numerous epidemiological studies have been published suggesting that newer-generation combined hormonal contraceptives (CHCs) have higher thrombotic potential than older formulations. It has been postulated that progestogens such as levonorgestrel (LNG) have anti-estrogenic properties that reduce prothrombotic potential when combined with EE. This effect is apparently absent with newer progestogens.6

However, studies have also been published that do not demonstrate increased rates of VTE with newer formulations and so cast doubt on this link. The discrepancy has led to heated scientific debate about design flaws, possible confounders and biases in the studies.7 8 Furthermore, some experts have questioned the biological plausibility of the anti-estrogenic effect of older progestogens. Norelgestromin in the transdermal patch is metabolised to LNG with EE. This effect is apparently absent with newer progestogens.6

THE EMA REPORT ON CHC

Following the French request for clarification, the EMA’s Pharmacovigilance Risk Assessment Committee (PRAC) examined all available data regarding VTE risk with CHC and published a report in January 2014.9 The overall finding was that the benefits associated with using any CHC far outweigh risks of serious adverse events in most women. VTE is fatal in only 1–2% of sufferers. All CHCs increase the risk of VTE slightly, but some products may increase it marginally more than others (Table 1). The ranges of figures do overlap considerably, which raises the question of how these estimated risks should be interpreted in practice.
The risk of arterial thromboembolism is also slightly increased with CHC use. A large Danish study estimated a risk of around 2/10 000 women in a year. The PRAC concluded there was no evidence of a difference in relative risk between products.

The PRAC emphasised the importance of risk factors in the development of thrombosis, both arterial (e.g. hypertension, smoking, cholesterol and diabetes) and venous (such as obesity, smoking and immobility). These risks should be assessed, all contraceptive options explored, and shared management plans agreed with patients. CHC users should be educated about the signs of thrombotic disease and have their risk reassessed regularly to minimise adverse events.

**THE FRENCH ‘DIANETTE’ BAN**

In the midst of the contraception controversy in France, the ANSM completed a 2-year investigation into Diane-35 and its generics. Diane-35 is co-cyprindiol, a combination of 2 mg cyproterone acetate and 35 μg EE and is marketed as Dianette (as well as Clairette, Anocin and Cicafem) in the UK. Cyproterone is a derivative of 17-hydroxyprogesterone acetate and has a specific anti-androgenic effect. Co-cyprindiol has been licensed since 1987 to treat androgenic conditions such as acne, seborrhoea, hirsutism and alopecia. Cyproterone has potential fetotoxic effects, specifically feminisation of male fetuses. It is not a recommended monotherapy in pregnant non-user of CHCs

<table>
<thead>
<tr>
<th>Category of woman</th>
<th>Risk of developing VTE in a year (per 10 000 women)</th>
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<tbody>
<tr>
<td>Non-pregnant non-user of CHCs</td>
<td>2</td>
</tr>
<tr>
<td>Woman using CHCs containing levonorgestrel, norethisterone, norgestimate</td>
<td>5–7</td>
</tr>
<tr>
<td>Woman using CHCs containing etonogestrel, norgestromin</td>
<td>6–12</td>
</tr>
<tr>
<td>Woman using CHCs containing drospirenone, gestodene, desogestrel</td>
<td>9–12</td>
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</tbody>
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*Adapted from the Assessment Report for Combined Hormonal Contraceptives Containing Medicinal Products.*

CHC, combined hormonal contraceptive; VTE, venous thromboembolism.

In January 2014, the European Commission adopted a legally-binding decision to update product information of all CHCs throughout the European Union. All combined hormonal products are now back on the market in France, including Diane-35. Not surprisingly though, the pill scare has resulted in a change in the contraceptive landscape in France, with one in five women having switched method. Use of the

**FULL CIRCLE IN FRANCE**

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contraceptive pill has dropped by 9% and French women are now opting for less effective methods such as withdrawal or natural family planning.15

These events show how personal tragedy, legal decisions, and emotive media reporting can influence policy and patient choice. Scientific evidence doesn’t always give absolute answers and experts don’t always agree.7 Pending lawsuits involving huge amounts of money create an environment where scientists are under pressure to present indisputable evidence. Accusations of ‘conflicts of interest’ are inevitable,16 and the issue of risk associated with ‘the pill’ has escalated into an ideological fight. Until large-scale, well-designed trials provide valid and universally accepted conclusions, it is an issue that shows no sign of being resolved.7

LIFE IS BITTER
In her autobiography La pilule est amère (The Bitter Pill)2 Marion Larat describes her slow recovery from the stroke that left her hemiplegic, aphasic and epileptic. She only learnt that the pill had contributed to the thrombosis 4 years later when a haematologist diagnosed her with factor II prothrombin mutation.2 This genetic clotting disorder can increase the risk of thrombosis on any combined pill and potentially in pregnancy.15 Marion Larat then began her crusade against third- and fourth-generation pills through the Association de Victimes d’Embolie Pulmonaire et AVC (AVEP).

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