

## Transdermal contraceptive patch: Safe or risky treatment?

A 15-year-old girl started a low-dose oral contraceptive three months previously. She comes back for follow-up wanting her contraception to be changed to a skin patch because she has a hard time remembering to take the daily oral contraceptive medication. On further questioning, you document that she has a regular partner and that they do not always use a condom. However, her menstrual period started two days previously. You counsel her on the risk of sexually transmitted infections and on the importance of protection. She also admits to being a regular cigarette smoker (six to eight cigarettes per day), and denies any headache and family history of stroke or thrombophlebitis.

On physical examination, her height is 160 cm (10th percentile) and her weight is 80 kg (greater than the 95th percentile), with a calculated body mass index of  $31.2 \text{ kg/m}^2$

(greater than the 95th percentile) and predominantly more body fat distributed in the abdominal area. Her blood pressure is 130/70 mmHg. You perform a gynecological examination that is normal and you confirm negative vaginal cultures, Pap smear and pregnancy tests. A urine dipstick test is also negative. You appropriately change her medication to a transdermal contraceptive system containing 6.0 mg of norelgestromin and 0.60 mg of ethinyl estradiol, and arrange a follow-up visit to see her in one-month.

Three weeks later, you learn that she was involved in a motorcycle accident, immobilized with a femur fracture and taken off the patch. She then suffered a deep vein thrombophlebitis requiring heparinization. Further investigations revealed that she was a carrier of a factor V Leiden mutation.

### LEARNING POINTS

- Transdermal contraceptive systems are popular, effective and convenient because they are applied once a week and associated with better compliance, especially in adolescents.
- All estrogen/progesterone combination contraceptives carry a risk of thrombophlebitis and thromboembolic disease (TED) with the majority of the risk attributable to the estrogen component.
- The risk of venous thromboembolism in users of the oral contraceptive pill (OCP) is up to four times higher than in age-matched nonusers, but is still lower than the risk of TED in pregnancy, which is 13 times higher.
- Other risk factors to be considered include a family history or a personal history of TED, or thrombophilia, obesity, smoking, prolonged immobilization and a factor V Leiden mutation.
- Although cases of stroke and death have been reported in young, otherwise healthy women on oral hormonal contraception or in those using a transdermal contraceptive system, in the absence of a personal or family history of TED, universal laboratory screening for procoagulant conditions before OCP use is not recommended or deemed economically justified.
- Intersubject variability for the pharmacokinetic parameters following delivery from a transdermal contraceptive system can expose women to higher levels of estrogens than most birth control pills, and can theoretically carry a greater risk of venous thromboembolism.
- The Canadian transdermal contraceptive patch is different than the American product with a lower estrogen content and, over the 21-day period of use, had a comparable dose of estrogen to an OCP in a comparable category.
- Women who have experienced a thromboembolic event are candidates for a progestin-only method of contraception, such as depot medroxyprogesterone acetate.
- Research is needed to document the average daily amount of hormones released by different transdermal contraceptive systems, and further postmarketing surveillance is needed to document associated adverse events.

*The Canadian Paediatric Surveillance Program (CPSP) is a project of the Canadian Paediatric Society, which undertakes the surveillance of rare diseases and conditions in children. For more information, visit our Web site at <[www.cps.ca/cpsc](http://www.cps.ca/cpsc)> or <[www.cps.ca/pcsp](http://www.cps.ca/pcsp)>. Accepted for publication July 11, 2007*