

## **Thromboprophylaxis in pregnant women**

One of the objectives of the Thrombosis Guidelines Group of the BSTH (Belgian Society on Thrombosis and Haemostasis) and of the BWGA (Belgian Working Group on Angiology) is to propose practical recommendations that provide practitioners with answers to common issues in daily practice about venous thromboembolism (VTE).

The following tables are based on a previous article published by the Group in 2002 (1), on the consensus of the American College of Chest Physicians (ACCP) of 2004 and 2008 (2,3)) and the Royal College of Obstetricians and Gynaecologists RCOG guidelines (4).

Most of the recommendations included in these guideline documents (1-4) are expert-opinion based because there are relatively few large studies and no randomized trials.

Each pregnant woman should therefore be evaluated on an individual basis taking into account any additional risk factor. For a more complete understanding we refer to the above-mentioned guideline documents (1-4).

### References

- (1) Vermynen J. Grossesse et thrombose- Zwangerschap en trombose. *Gynaïkeia* 2002; 7(7):252-256.
- (2) Bates SM, Greer IA et al. Use of antithrombotic agents during pregnancy: the Seventh ACCP conference on Antithrombotic and Thrombolytic Therapy. *Chest* 2004;126:627S-644S
- (3) Bates SM, Greer IA et al. Venous Thromboembolism, Thrombophilia, Antithrombotic Therapy and Pregnancy: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th edition). *Chest* 2008; 133:844-886
- (4) RCOG. Thromboprophylaxis during pregnancy, labour and after vaginal delivery. Guideline N°37. Guidelines by Royal College of Obstetricians and Gynaecologists 2004. Available on website: <http://www.rcog.org.uk>

VTE: venous thromboembolism: VTE includes both deep vein thrombosis and pulmonary embolism

## Risk factors for pregnancy-associated VTE

Previous VTE

Inherited or acquired thrombophilia

Age > 35 years

Obesity (BMI >30 kg/m<sup>2</sup>)

Prolonged bed rest (> 4 days)

Parity > 4

Multiple pregnancy

Caesarian section

## Thromboprophylaxis after caesarian section

<b>Recommendations</b>		
Graduated elastic compression stockings and early mobilisation		
<b>For whom ?</b>	<b>What ?</b>	<b>When ?</b>
No additional risk factors*	No pharmacological prophylaxis	
Additional risk factors*	Prophylactic dose LMWH	At least 3 to 5 days or until mobilisation.

### LMWH:

- prophylactic dose: 4000 or 5000 IU anti-Xa/24h

\* Additional risk factors: emergency caesarean section  
concomitant acute medical illness  
age > 35 years  
obesity (BMI > 30 kg/m<sup>2</sup>)  
prolonged bed rest (> 4 days)  
parity > 4  
multiple pregnancy  
preeclampsia

In case of **previous VTE**, see 'Thromboprophylaxis in pregnant women with previous VTE'

In case of **thrombophilia**, see 'Thromboprophylaxis in pregnant women with inherited thrombophilia but without previous VTE'

VTE: Venous thromboembolism

LMWH: low molecular weight heparin

## Thromboprophylaxis in pregnant women with previous VTE

<b>Recommendations</b>		
Graduated elastic compression stockings		
For whom ?	What ?	When ?
<b>Single episode of VTE</b>		
Provoked VTE	<ul style="list-style-type: none"> <li>• Clinical surveillance</li> <li>• Prophylactic dose LMWH</li> </ul>	<ul style="list-style-type: none"> <li>• During pregnancy</li> <li>• 6 weeks postpartum</li> <li>• Consider prophylactic dose LMWH <u>during</u> pregnancy if additional risk factors*</li> </ul>
Unprovoked (idiopathic) VTE or pregnancy-or estrogen-related VTE	Prophylactic dose LMWH	During pregnancy and for 6 weeks postpartum
Thrombophilia** <ul style="list-style-type: none"> <li>• Low risk</li> <li>• High risk</li> </ul>	<ul style="list-style-type: none"> <li>• Prophylactic dose LMWH</li> <li>• Intermediate dose LMWH</li> </ul>	During pregnancy and for 6 weeks postpartum
<b>Multiple episodes of VTE</b>  <b>or</b>  <b>Long term anticoagulation</b>	Intermediate or full-treatment dose LMWH	<ul style="list-style-type: none"> <li>• During pregnancy and for 6 weeks postpartum</li> <li style="text-align: center;">or</li> <li>• Postpartum resumption of long term anticoagulation</li> </ul>

### LMWH:

- prophylactic dose: 4000 or 5000 IU anti-Xa/24h
- intermediate dose: 100 IU anti-Xa/kg/24h
- full-treatment dose: 100 IU anti-Xa/kg/12h or 175-200 IU anti-Xa/kg/24h

\* Additional risk factors: age > 35 years  
 obesity (BMI > 30 kg/m<sup>2</sup>)  
 prolonged bed rest (> 4 days)  
 parity > 4  
 multiple pregnancy

\*\* Low risk thrombophilia: protein C or S deficiency, heterozygous factor V Leiden or prothrombin gene mutation G20210A, high factor VIII (> 200%)  
 High risk thrombophilia: antithrombin deficiency, ≥ 2 thrombophilic conditions, homozygous factor V Leiden or prothrombin gene mutation G20210A

## Thromboprophylaxis in pregnant women with inherited thrombophilia but without previous VTE<sup>♦</sup>

<b>Recommendations</b>		
Graduated elastic compression stockings		
For whom ?	What ?	When ?
Inherited thrombophilia**		
<ul style="list-style-type: none"> <li>Low risk</li> </ul>	<ul style="list-style-type: none"> <li>Clinical surveillance</li> <li>Prophylactic dose LMWH</li> </ul>	<ul style="list-style-type: none"> <li>During pregnancy</li> <li>6 weeks postpartum</li> <li>Consider prophylactic dose LMWH <u>during</u> pregnancy if additional risk factors*</li> </ul>
<ul style="list-style-type: none"> <li>High risk</li> </ul>	<ul style="list-style-type: none"> <li>Prophylactic dose LMWH</li> <li>Consider intermediate or full-treatment dose LMWH in antithrombin-deficient women</li> </ul>	<ul style="list-style-type: none"> <li>During pregnancy and for 6 weeks postpartum</li> </ul>

### LMWH:

- prophylactic dose: 4000 or 5000 IU anti-Xa/24h
- intermediate dose: 100 IU anti-Xa/kg/24h
- full-treatment dose: 100 IU anti-Xa/kg/12h or 175-200 IU anti-Xa/kg/24h

\* Additional risk factors: age > 35 years  
obesity (BMI > 30 kg/m<sup>2</sup>)  
prolonged bed rest (> 4 days)  
parity > 4  
multiple pregnancy

\*\* Low risk thrombophilia: protein C or S deficiency, heterozygous factor V Leiden or prothrombin gene mutation G20210A, high factor VIII (>200%)  
High risk thrombophilia: antithrombin deficiency, ≥ 2 thrombophilic conditions, homozygous factor V Leiden or prothrombin gene mutation G20210A

♦ these women require individual risk assessment and joint specialist management by obstetricians and experts in haemostasis

VTE: venous thromboembolism  
LMWH: low molecular weight heparin

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## Thromboprophylaxis in pregnant women with antiphospholipid antibodies but without previous VTE<sup>♦</sup>

<b>Recommendations</b>		
Graduated elastic compression stockings		
For whom ?	What ?	When ?
No previous adverse pregnancy outcomes**	<ul style="list-style-type: none"> <li>• Clinical surveillance + aspirin<sup>®</sup> 100mg/day</li> <li>• Prophylactic dose LMWH + aspirin<sup>®</sup> 100 mg/day</li> </ul>	<ul style="list-style-type: none"> <li>• During pregnancy</li> <li>• Consider prophylactic dose LMWH <u>during</u> pregnancy if additional risk factors*</li> <li>• 6 weeks postpartum</li> </ul>
Previous adverse pregnancy outcomes**	<ul style="list-style-type: none"> <li>• Prophylactic or intermediate dose LMWH + aspirin<sup>®</sup> 100mg/day</li> </ul>	<ul style="list-style-type: none"> <li>• During pregnancy and for 6 weeks postpartum</li> </ul>

### LMWH:

- prophylactic dose: 4000 or 5000 IU anti-Xa/24h
- intermediate dose: 100 IU anti-Xa/kg/24h

\* Additional risk factors: age > 35 years  
obesity (BMI > 30 kg/m<sup>2</sup>)  
prolonged bed rest (> 4 days)  
parity > 4  
multiple pregnancy

\*\* Adverse pregnancy outcomes: pregnancy losses (≥ 3 early or ≥ 1 late pregnancy loss)  
preeclampsia  
intrauterine growth restriction  
abruptio or unexplained intrauterine foetal death

♦ these women require individual risk assessment and joint specialist management by obstetricians and experts in haemostasis

VTE: venous thromboembolism  
LMWH: low molecular weight heparin