

# Contents

**WARNING: Always check that the prescribed dose is reasonable!**

List of contributors, ix

Preface, xi

Abbreviations, xiii

## **PART 1 General hemostasis**

### **1 Schematic presentation of the hemostatic system, 3**

*Nils Egberg*

### **2 Proposals for sampling instructions, 6**

*Margareta Blombäck, Nils Egberg*

Points to note prior to sampling, 6

Sampling time and patient preparation, 7

Referrals for coagulation analyses, 8

Sampling, 8

### **3 Laboratory investigations, 11**

*Jovan P. Antovic, Nils Egberg*

Nomenclature, 11

Reference intervals for laboratory investigations, 13

Screening analyses, 13

Special analyses, 18

Markers of coagulation activation (hypercoagulation markers), 24

DNA analyses, 25

Global hemostatic assays and bedside methods, 27

Useful components in research studies, 28

Other nonhemostatic variables of importance, 32

## **PART 2 Bleeding disorders**

### **4 Hereditary bleeding disorders, 37**

*Margareta Holmström, Margareta Blombäck*

General remarks about hemophilia A and B, 37

General remarks about von Willebrand's disease, 38

Factor concentrates used for treatment of hemophilia A and B and VWD in Sweden in 2009, 39

Treatment strategy in severe forms of hemophilia and VWD, 41

Surgery in patients with bleeding disorders, 43

Tooth extraction in a hemophilia patient, 44

Caution in patients with bleeding disorders, 44

Treatment principles for different types of bleeding disorders (severe, moderate and milder forms of hemostatic defects), 46

Severe platelet function defect, e.g. Glanzmann's thrombasthenia, 48

Mild hemostatic defects, 48

Blood sampling in bleeding disorders, 50

Bleeding risk charts, 51

### **5 Critical bleedings, 52**

*Hans Johnsson*

Introduction, 52

Massive bleeding, 52

Transfusion coagulopathy, 53

Treatment, 53

Complicating factors, 56

Ongoing treatment with platelet-inhibiting and antithrombotic drugs, 57

### **6 Investigations of increased bleeding tendency, 58**

*Nils Egberg, Margareta Holmström*

Introduction, 58

Diagnosis, 58

Reasons for pathologic screening analyses and further actions, 60

Causes of thrombocytopenia, 60

Causes of prolonged activated partial thromboplastin time, 61

Causes of elevated PT(INR), 62

Investigation of bleeding tendency – practical aspects, 62

### **PART 3 Thromboembolic disorders**

#### **7 Venous thrombosis and pulmonary embolism, 67**

*Anders Carlsson*

Introduction, 67

Incidence of thrombosis in different clinical materials, 67

Venous thrombosis, 68

Pulmonary embolism, 71

#### **8 Drug treatment in deep vein thrombosis and pulmonary embolism, 75**

*Anders Carlsson*

Treatment of acute deep vein thrombosis and pulmonary embolism, 75

Drug treatment in deep vein thrombosis and pulmonary embolism, 77

Action to take to avoid the risk of thrombosis, 86

Primary prophylaxis against deep vein thrombosis and pulmonary embolism, 88

#### **9 New anticoagulants: focus on currently approved oral factor Xa and factor IIa inhibitors, 91**

*Rickard E. Malmström*

Introduction, 91

Rivaroxaban, 91

Dabigatran, 95

Ongoing clinical studies and other therapeutic indications, 100

Possibility of and need for therapeutic monitoring of new anticoagulants, 100

#### **10 Arterial thromboembolism, 103**

*Kenneth Pehrsson, Håkan Wallen, Jesper Swedenborg, Nils Wahlgren*

Ischemic heart disease, 103

Thrombolysis, 104

Percutaneous coronary intervention, 105

Cardiac arrhythmias (atrial fibrillation), 106

Stroke and transient ischemic attack (TIA), 109

**11 Investigation of thromboembolic tendency, 112**

*Margareta Holmström*

Introduction, 112

Venous thromboembolism, 113

Arterial thromboembolism, 114

Disseminated intravascular coagulation, 114

**PART 4 Special hemostasis**

**12 Hemostasis in obstetrics and gynecology, 119**

*Katarina Brenne*

Thrombosis during pregnancy, 119

Heart disease: treatment of women with mechanical heart valve prostheses, 126

Thromboprophylaxis in obstetrics and gynecology, 126

Blood sampling in children of women with severe forms of thrombophilia, 132

Obstetric epidural/spinal analgesia (anesthesia), 133

Complications during pregnancy, 134

Postpartum bleeding, 140

Thromboprophylaxis in legal and spontaneous abortions, 141

Thromboprophylaxis in gynecologic surgery, 141

Oral contraceptives, hormone substitution, 142

Investigation prior to artificial insemination, 145

Investigation in repeated miscarriages, 145

Investigation in menorrhagia, 146

**13 Hemostasis defects in children, 147**

*Pia Petrini*

Bleeding disorders in children, 147

Thromboembolic disorders in children, 154

**14 Emergency conditions associated with coagulation activation, 161**

*Jovan P. Antovic, Margareta Holmström*

Disseminated intravascular coagulation, 161

Heparin-induced thrombocytopenia, 167

Thrombotic microangiopathies (TTP and HUS), 169

Index, 171