Interdisciplinary research and education in the field of thrombosis and haemostasis is indispensable to improve the health of our population. No other medical discipline encompasses so many different organ systems and affects patients of different ages from newborns to the elderly, women as well as men in an equal distribution. In the light of our 2016 GTH congress topic “Haemostasis – an indispensable, cross-sectional medical discipline – networking and collaboration between interdisciplin ary scientists, clinicians, industry and patients” – this special congress issue highlights four selected topics: i) the role of von Willebrand factor in experimental stroke, ii) platelets in immunity and inflammation, iii) thrombosis and haematologic malignancies in pregnancy, and iv) clinical thromboprophylaxis guidelines in cancer patients.

In this Theme Issue F. Denorme and S. de Meyer summarise the role of von Willebrand factor (VWF) and its binding to platelet glycoprotein Ib (GPIb) as a potential target for ischaemic stroke therapy (1). From the experimental point of view the authors highlighted the capacity of improving cerebral reperfusion rates by inhibiting the binding capacity between VWF and GPIb, thereby acting as a thrombolytic drug. Apart from inhibition the binding interaction between VWF and GPib this review also addresses the role of the VWF cleavage protease ADAMTS13: Increased levels of ADAMTS13 may protect the brain from ischemia by regulating VWF-platelet interaction after reperfusion (2, 3). Thus, from the experimental point of view it is discussed that combined treatment modalities with VWF-GPIb inhibitors, ADAMTS13 and t-PA may act synergistically. The authors suggested that starting from bench to bedside more preclinical and clinical studies are needed to further address this approach.

Apart from the interaction of platelets within the coagulation system especially with VWF, R. Koenen summarises the role of platelets beyond their role in haemostasis (4). Via several mechanisms, for example RNA-mediated splicing and translation into functional proteins, the ability to bind to leucocytes and vascular endothelium, and the content of cytokines and growth factors in their secretory granules, the potential of platelets to modulate cellular responses is highlighted. These exemplarily enumerated properties result in inflammatory activation or apoptosis, thereby influencing the outcomes of bacterial and viral infections. The aforementioned characteristics concomitant with the sheer amount of platelets circulating in the blood stream predispose platelets as an important force in the immune response during health and disease.

Crossing over from “bench to bedside” N. Horowitz and colleagues introduce an overview on venous thromboembolism (VTE) risk situations occurring in pregnancies complicated by haematologic malignancies (5). The authors pointed out that the incidence of cancer during pregnancy is rising, mainly due to an increase in maternal age. Thus, following gestation-related vascular complications cancer is the second most common cause of maternal death associated to pregnancy. Apart from solid tumours, haematologic malignancies, however, are less frequently reported. Among them Hodgkin and Non Hodgkin lymphomas, leukaemias as well as myeloproliferative diseases are first diagnosed during the course of pregnancy. With respect to haematologic malignancies the authors summarise diagnostic and therapeutic challenges as well as treatment options which could be applied in pregnant women with respect to gestational age. Furthermore the authors focus on the important issue of malignancy-associated risk to develop VTE. In general, pregnancy-mediated hypercoagulability accounts for a 4-fold increased VTE risk during gestation, followed by an even higher risk immediately postpartum (20-fold). The risk to develop VTE associated with haematologic malignancies on top of pregnancy was clearly elevated with hazards of 7.87 in women with Hodgkin lymphoma and 2.075 in women with myeloid leukaemia. As a consequence the authors suggested that women with haematologic or gynaecological malignancies should be considered to receive VTE prophylaxis during pregnancy.

Another manuscript in this special GTH congress issue focuses on clinical practice guidelines for VTE prophylaxis in hospitalized and outpatient cancer patients. C. Frere and D. Farge summarise on an evidence-based level national and international guideline data available on VTE prophylaxis in cancer patients (6). Despite there is strong epidemiological evidence for a high risk of VTE in patients with malignancies VTE thromboprophylaxis is still largely underused. Based on cancer-associated risk assessment tools to develop VTE during the course of cancer, indications of VTE prophylaxis with antithrombotic drugs such as low-molecular-weight heparin are discussed from the surgical and medical cancer perspective, including

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Haemostasis – an indispensable, cross-sectional medical discipline
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catheter-related VTE. Since a significant number of cancer patients still do not receive adequate thromboprophylaxis, the authors offer the use of an International Initiative on Thrombosis and Cancer-CME free mobile app (https://www.itaccme.com/en/practice-guidelines/guidelines-app) based on regularly updated international CPG, which will facilitate knowledge transfer worldwide, and further improve patient care and quality of life.

Conflicts of interest
None declared.

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