Celebration of the XL refresher course on:
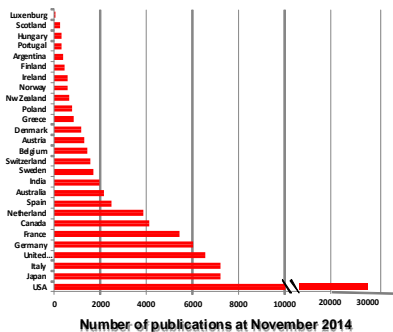
"Congenital and acquired coagulation alterations" – Focus on the "History of laboratory tests and their clinical use in studying haemostasis and thromboses"

Milan 19-20 November 2014

Prof. De Gaetano, Director of the Department of Epidemiology and Prevention, IRCCS Mediterranean Neurological Institute NEUROMED, Pozzilli, Isernia, opened the congress works with a talk on the **40-year activity of the course….40 years old but feeling younger.** The presentation highlighted the relevance of this 40-year old initiative.
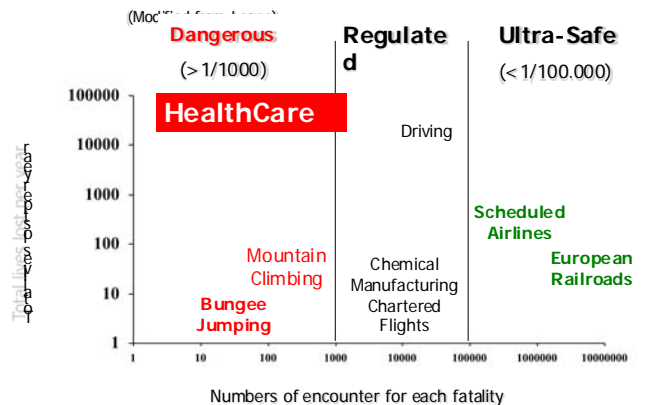
Scientific research in the specific field has made giant steps forwards and **Italian researchers have continued to produce scientific data and increased the number of publications over the years,** thus enabling Italy to remain in the forefront in this sector.

Prof. Gensini of the Department of Experimental and Clinical Medicine of the University of Florence gave a talk on "Errors in Medicine, considered as clinical risks". One of the most significant points he made concerned the **decidedly high risk level that patients are exposed to during "clinical treatments"**. How can this unacceptable risk level be reduced? By identifying the errors, correcting them, and implementing operating procedures that allow for multiple checks of the diagnostic/therapeutic practices to be carried out on the patient.
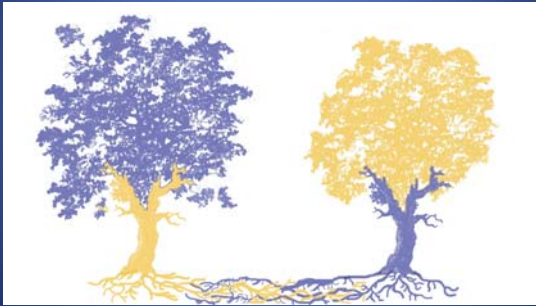
Professor Licia Iacovello of the Molecular and Nutritional Epidemiology Laboratory, Department of Epidemiology and Prevention, IRCCS Mediterranean Neurological Institute NEUROMED, Pozzilli, Isernia, addressed the issue of cardiovascular risk factors in the light of the data and prospects of the **Molisani Project, an observational epidemiological study conducted**

Why cardiovascular disease and tumors?

The "common soil" hypothesis

on **35,000 inhabitants of the Molise region**, that envisages follow-up visits every 6 years for an indefinite period. She discussed the risk factors and also provided extremely interesting data on **the "common soil" theory**. This revealed a strong connection between the D-dimer and mortality rate for all the causes, and the D-dimer and the risk of cancer in women.

Viscoelastic Monitoring

Prof. Domenico Prisco of the Department of Experimental and Clinical Medicine of the University of Florence gave a talk on: "Postpartum haemorrhage: new diagnostic and therapeutic challenges". Postpartum haemorrhage is a pathological condition that can occur very suddenly and give rise to massive bleeding which is life-threatening for the patient and also the third cause maternal postpartum death. Underlying this pathological event is a complex physiological mechanism where the haemostatic alteration plays a fundamental role. The morbidity and mortality of PPH

MONITORAGGIO VISCOELASTICO

TROMBOELASTOMETRO ROTAZIONALE   TROMBOELASTOGRAFO

are still high, therefore it is necessary to use diagnostic instruments that are able to rapidly give useful indications for therapeutic intervention. **Prof. Prisco presented the data relating to the use of new diagnostic methods such as thromboelastography (TEG) and rotational thromboelastmetry (ROTEM)**, that are useful in guiding transfusion therapy during major bleeding.
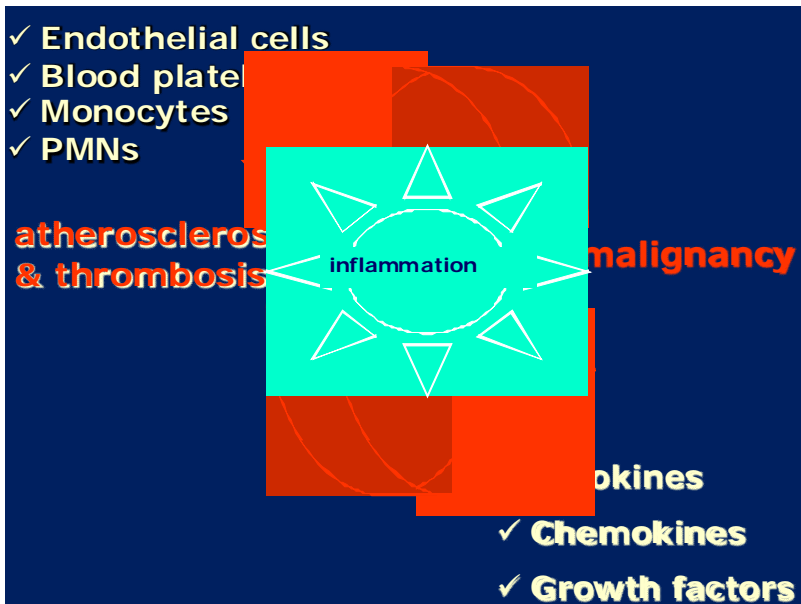

Advantages of NOAC

- Rapid onset of action
- Specific coagulation enzyme target
- Low potential for food interactions
- Low potential for drug interactions
- **Predictable anticoagulant ettect**

No need for bridging

Low risk of off-target adverse effects

No dietary precautions

Few drug restrictions

NO need for routine coagulation monitoring

Prof. Marco Moia of the A. Bianchi Bonomi Haemophilia and Thrombosis Centre, Fondazione IRCCS Ca' Granda, Ospedale Maggiore Policlinico of Milan, spoke about the **oral anticoagulant drugs (NOAC)**, which, while very interesting, are still not able to take over from or replace Warfarin.

Prof. Mannuccio Mannucci, Scientific Direction of the Fondazione IRCCS Ca' Granda, Ospedale Maggiore Policlinico of Milan spoke about the "Diagnosis of haemophilia and Von Willebrand disease" **tracing the history over the last 70 years until now, and its relative progress in diagnostic terms that has allowed it to become a safe and reliable diagnosis today.**

CONCLUSIONS

- **Nowadays the diagnosis of the hemophilia and von Willebrand disease are quite accurate and specific**

- **The milestones discoveries were:**

  - **The APTT and related one-stage factor assays**

  - **The identification of the VWF defect and its differentiation from that of hemophilia A (factor VIII related antigen)**

  - **The development of functional assays of VWF (VWF:RCo)**

- **The accurate collection of the clinical history remains a diagnostic pillar, strengthened by the development in Vicenza of the bleeding score**

- ✓ **Endothelial cells**
- ✓ **Blood platel**
- ✓ **Monocytes**
- ✓ **PMNs**

atheroscleros & thrombosis

inflammation

malignancy

- okines
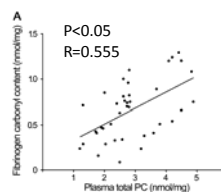- ✓ **Chemokines**
- ✓ **Growth factors**

Prof. Maria Benedetta Donati of the Department of Epidemiology and Prevention, IRCCS Mediterranean Neurological Institute NEUROMED, addressed the issue: "in the beginning there was the tissue factor….(recalling Prof. Roberto Lorenzet)". She discussed the main steps that led to the discovery of the **fundamental role of the Tissue Factor in the thrombotic, atherogenic and cancer-progression processes**, in this way recalling Prof. Lorenzet's essential contribution of in this field.

Prof. Rosanna Abbate, Department of Experimental and Clinical Medicine of the University of Florence, spoke about "Oxidative stress and haemostasis", outlining the relationship existing between oxidative stress, fibrinogen, the endothelium and the platelets, and **concluding with a presentation of the data produced by her research group.**
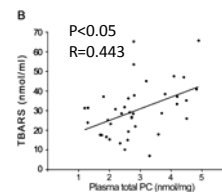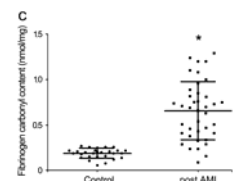
Arteriosclerosis, Thrombosis, and Vascular Biology

Redox alterations in post-AMI patient

$P<0.05$
$R=0.555$

$P<0.05$
$R=0.443$

Pearson rank correlation analysis in post-AMI patients comparing plasma total protein carbonyls (PC) and fibrinogen carbonyl content

Pearson rank correlation analysis in post-AMI patients comparing comparing plasma total PC and Thiobarbituric Acid Reactive Substances (TBARS) levels

Fibrinogen carbonyl content in purified fibrinogen fractions from post-AMI patients (n. 39) and controls (n. 28)

Becatti et al., ATVB 2014