

## *Great Gathering of Great Minds*

*- Sysmex 2<sup>nd</sup> International Scientific Seminar, Ho Chi Minh City, Vietnam -*

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On the sunny morning of December 11, 2009, Sysmex Asia Pacific, in collaboration with Sysmex Corporation, kicked-off its 2<sup>nd</sup> International Scientific Seminar at the Sheraton Saigon Hotel & Towers in Ho Chi Minh City, Vietnam.

Vietnam is one of the fastest growing countries in Asia, and Ho Chi Minh City, the largest city in Vietnam, is the centre of economic activity. Ho Chi Minh City, also known as Saigon, was very much influenced by the French during the colonial era in the 19<sup>th</sup> century, which is the reason for the number of historic French colonial buildings in the city. Because of this Saigon is also called "Paris in the Orient". It was very meaningful to present exciting new developments and concepts in this transitioning city in the midst of such an historical atmosphere.

The seminar was opened by Mr. Mark Hayashi, Executive Officer Managing Director of Sysmex Corporation and Mr. Frank Buescher, President & CEO of Sysmex Asia Pacific. Ten speakers from across four continents and more than 300 delegates from 14 countries worldwide (mainly from the Asia Pacific region) attended this important event - the biggest scientific event organized by Sysmex in Asia Pacific.

The seminar was divided into three sessions, over one and a half days. The clinical utility of novel parameters and approaches in diagnosing diseases were discussed at the first session: "State of the Art". In the second session: "Defining Disease States", the diagnostic potential of combining data from hematological measurements was explored; and during the third session: "Diagnostic Morphology/Cellular analysis", the power of technology in cell analysis was discussed.



Notre Dame Cathedral.



Ho Chi Minh City was named in honor of the late communist leader, Mr Ho Chi Minh (in the framed picture).

## Session I: State of the Art

The first session of the seminar was chaired by *Associate Professor Tien Sim Leng*, Senior Consultant Hematologist at the Department of Hematology and Pathology at Singapore General Hospital.

*Dr. Jo Linssen*, Assistant Director and Head of Clinical Management Concepts Department at Sysmex Europe GmbH, was the first speaker for this session. Dr. Linssen who has a doctor degree in Medical Bio-science has a special interest in the differentiation and management of inflammatory diseases. Biochemical markers used to diagnose inflammatory diseases are relatively insensitive and expensive, and current clinical scoring systems used for sepsis staging are time consuming and have poor inter-observer reliability. Their use in supporting physicians in diagnosis and identification of patients at risk is limited. The main cause of most of the detrimental sepsis consequences can be found in impaired or deregulated function of blood cells so there could be a possibility of developing a score based on routine blood cell parameters to discriminate between infectious and non-infectious inflammatory disease as well as provide a prognosis for the disease.

Dr. Linssen provided an insight to this topic with his presentation: "Intensive care management - Hematological cell analysis scores for sepsis diagnostics. Imagination or reality?" He concluded that rapid, simple and uncomplicated cellular hematology scores could support treating physicians in identifying patients at high risk and defining the course and severity of the disease.

Thrombocytopenia is a commonly encountered hematological abnormality, and evaluation of the mechanism of thrombocytopenia is always necessary for determining appropriate treatment. Bone marrow examination has been useful in examining patients with unexplained thrombocytopenia and risk of major bleeding, however it carries a certain level of risk since it is an invasive procedure. Less invasive laboratory tests are preferred. *Professor Yutaka Yatomi*, Professor and Head of the Department of Clinical Laboratory Medicine, Graduate School of Medicine at the University of Tokyo, discussed two "non-invasive" and promising laboratory tests; immature platelet fraction (IPF) and thrombopoietin (TPO) in "Diagnosis of thrombocytopenia: a novel approach". Immature platelets, also known as reticulated platelets, possess increased RNA content. Measurement of the RNA content with thiazole orange dye by flow cytometry has been useful in monitoring the thrombopoietic activity and evaluating the diagnostic classification of thrombocytopenia. Prof. Yatomi discussed an automated method for quantifying reticulated platelets, expressed as immature platelet fraction, on Sysmex hematology analyzers. He presented study results which showed that immature platelet fraction is a useful parameter for differentiating the causes of thrombocytopenia. He also showed that serum TPO reflects in-vivo platelet turnover. Thus, both IPF and TPO are useful for learning in-vivo platelet kinetics and in differentiating the pathogenesis of thrombocytopenia.

A working group was set up by the Subcommittee on Lupus Anticoagulants (LA) / Phospholipid-dependent



The new Sysmex logo mark was used as the backdrop during the seminar.



Seminar registration: most of the delegates arrived early to collect the seminar material.

antibodies of the International Society on Thrombosis and Hemostasis (ISTH). This group recently issued new guidelines for detecting LA. The new guidelines are intended to update the guidelines issued in 1995 based on the experience and knowledge accumulated since then. This is the first occasion that **Professor Armando Tripodi**, Professor of Laboratory Medicine at the Angelo Bianchi Bonomi Hemophilia and Thrombosis Center, Internal Medicine, University of Milano and part of the working group, presented these new guidelines to an international audience. In his presentation, Prof. Tripodi touched on the important issues in LA testing which include: who should be tested, pre-analytical variables, which test(s) should be performed, diagnostic criteria, when to do the test, and results reporting.

## Session II: Defining Disease States

The second session of the seminar was chaired by **Dr. Shanaz Khodaiji**, Consultant of the Department of Hematology and Transfusion Medicine of P.D. Hinduja National Hospital and Medical Research Centre in Mumbai, India.

The first presenter for this session was **Mr. Steve Johnson**, charge scientist of the Hematology Laboratory at Medlab Central in New Zealand. In his presentation, he described the use of yet another innovative parameter, Neut-X, by Sysmex hematology analyzers to detect early myelodysplastic syndromes (MDS). Treatments for MDS are mostly supportive. However, with new treatments available, it is desirable to detect MDS early so as to

improve patient outcomes. The current film review rules, that the laboratory uses for detecting possible myelodysplasia consist of 4 multiple cytopenia rules, and are non-specific. Often a large number of blood films have to be reviewed but only very few cases of MDS are detected. Neut-X is a measure of the internal complexity of neutrophils, in particular, it reflects the cytoplasmic granularity of neutrophils. In this study, a Neut-X reference range, 1248-1360, was established with 9,232 patients. Mr. Johnson showed that using a Neut-X at a cut-off value of <1220 in conjunction with cytopenia of any degree gave an acceptable film review rate and did not miss any patients of immediate clinical significance. With this, he has foreseen that the laboratory's film review rate will drop by 1.1% or 176 films per month from the current rate while not missing any clinically significant cases and improving detection in patients who presented with a single borderline cytopenia.

**Professor Yukio Ozaki** of the Department of Clinical and Laboratory Medicine of the University of Yamanashi in Japan explained the fundamentals of hematology, focusing on red blood cells in his presentation, titled "Clinical significance of new RBC-related parameters of automated hematology analyzers". With the advancement of technology, cells such as nucleated red cells and fragmented red cells can now be precisely counted. Reticulocyte hemoglobin (Ret-H<sub>c</sub>) has been found to be a superior parameter over conventional parameters such as serum iron, transferrin, ferritin or transferrin saturation which can be disturbed during inflammation, pregnancy and many severe diseases. Its use in diagnosing



Delegates from Thailand taking a group picture during the tea break.



Interesting questions and animated discussions during the seminar.

functional iron deficiency has become a focus of interest. In his presentation, Prof. Ozaki explained the Sysmex technologies for measuring these new RBC-related parameters.

The last two talks in the second session were presented by speakers from the host country. Both speakers shared issues and challenges facing Vietnam. **Dr. Pham Quang Vinh**, Vice Director of the National Institute of Hematology and Blood Transfusion in Hanoi, shared with the audience insights on the "Management of thalassemia in Vietnam: issues & challenges". The prevalence of  $\alpha$ - and  $\beta$ - thalassemia, and Hemoglobin E disease is high in Vietnam, especially among the ethnic minorities. Presently, there is no national program for thalassemia and as such the prevalence is still high in Vietnam. In his presentation, Dr. Vinh emphasized that thalassemia management programs which include prevalence research and screening of asymptomatic carriers, educational campaigns, patient management and treatment, and consultation and counseling would be the best solution for Vietnam.

**Dr. Bach Quoc Khanh**, Head of the Department of Clinical Hematology at the National Institute of Hematology and Blood Transfusion in Hanoi, shared his experience on a research project to investigate the major factors in Disseminated Intravascular Coagulation (DIC) diagnosis and the most suitable and effective protocol for treatment of each stage of DIC. The protocol for diagnosing and treating DIC in the institute was shown to be effective in treating DIC patients with underlying

disease, especially acute leukemia. Dr. Khanh concluded that D-dimer, prothrombin time, fibrinogen and platelet count are the most important tests for investigating DIC, and treatment for DIC is effective only if given in combination with treatment for the underlying disease.

### Session III: Diagnostic Morphology/ Cellular Analysis

The chairperson for the last session of the seminar was **Dr. Alejandro E. Arevalo**, Hematopathology Consultant of the Institute of Pathology at St Luke's Medical Center in the Philippines.

Examination of the blood is a necessary part of the diagnostic workup in a broad variety of clinical conditions and is essential for the diagnosis and management of hematologic diseases. Today a routine hematology laboratory is faced with two main problems: a continuously increasing workload and the need to meet the requirements for efficiency and high quality services. Furthermore, the communication between laboratories to facilitate second opinion gathering in difficult cases has become increasingly important not only in remote regions. Digital imaging devices such as CellaVision® DM96 are developed with these requirements in mind. **Professor Andreas R. Huber**, Head of Department of Laboratory Medicine at Kantonsspital Aarau AG, in Switzerland presented a study done by his institute to evaluate the performance of this instrument and the telehematology capability between distant sites. Prof.



Street theme pre-dinner cocktail.



Traditional Vietnamese dinner.

Huber showed that leukocyte differential counting using CellaVision® DM96 and telehematology technology is at least equal to the gold standard manual method. And CellaVision® DM96 can be implemented easily in a routine hematology setting and utilized without loss of quality to link hematology laboratories on a national and even international level.

**Dr. Linda Sandhaus**, Medical Director of Core Laboratory for Hematology at the University Hospitals of Cleveland, shared her experience in using the automated body fluid cell count on the Sysmex XE-5000, in particular with clear cerebrospinal fluid (CSF), in her presentation topic: "Automated CSF cell counting on the Sysmex XE-5000: Is it time for new reference ranges?". The focus of her presentation was on the white blood cell count (WBC) in CSF and the automated reference range compared to the existing manual reference range. Dr. Sandhaus showed that a higher automated WBC reference range cut-off is required than for manual WBC counts. Her data gave a preliminary estimated reference range of around 20 cells / $\mu$ L. She also raised the question of whether a new WBC reference range would have any impact on clinical practice. Her conclusion was "changing the reference range for WBC in CSF should not have much, if any, impact on the clinical diagnosis of meningitis" but there would be some impact on CNS (central nervous system) leukemia diagnosis as the treatment is based on a very low WBC cut-off.

The last scientific presentation was made by **Dr. Yupin Aniwatangoora**, Assistant Professor of the Department of Clinical Microscopy, Faculty of Associated Medical Sciences at Khon Kaen University in Thailand. Dr. Yupin's expertise is in hematology and urology, focusing

on the use of automated analyzers for disease detection and research population data. In this scientific seminar, Dr. Yupin gave us her expert view on the feasibility of using the Sysmex UF-1000i to diagnose glomerular and non-glomerular diseases. Her presentation topic was "RBC morphology: a useful parameter for the diagnosis of renal disease". In her presentation, Dr. Yupin emphasized the importance of proper sample storage if urine samples cannot be analyzed within two hours of collection. In her study, she found that urinary red blood cells started to decrease in numbers after three hours of voiding, but when stored at 4°C, this effect could be delayed. Dr. Yupin showed that using a small RBC/large RBC ratio, from the research parameters on UF-1000i, at a cut-off value of 1.37 and in association with RBC-P70Fsc, non-glomerular disease can be discriminated from glomerular disease with 100% sensitivity and specificity.

With the last topic delivered, the Sysmex 2<sup>nd</sup> International Scientific Seminar was closed by Mr. Kiyotaka Matsuno, Chief Operating Officer of Sysmex Asia Pacific who gave a short closing speech.

After this one and a half day seminar, participants were happy to leave with valuable information gathered from the lectures and discussions, but reluctant, at the same time, to bid farewell to such a beautiful city, Ho Chi Minh City. Many have expressed their congratulations to the organizing committee for the success of the seminar. Although this year's meeting is over, the Sysmex team will continue their journey of shaping the advancement of health care and look forward to creating the next exciting International Scientific Seminar in two year's time.