High Science Amidst High Mountains

― The Sysmex European Symposium 2005 in St. Wolfgang, Austria ―

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Is there any relationship between the intriguing landscape surrounding Alpine lakes and the success of a symposium? One might suppose that the splendid view of deep blue lake water surrounded by flowering meadows, snow-capped mountains, and neat villages somehow inspires the mood of the audience as well as the spirit of the distinguished speakers...

Fig. 1 Lake St. Wolfgang in Austria is a beautiful lake surrounded by mountains.

The Sysmex European Symposium 2005 in St. Wolfgang at the Lake St. Wolfgang in Austria was the 3rd in a row of biannual symposia. All took place on the shore of Alpine lakes : in Pfäffikon at the Lake Zurich in Switzerland (2001), and in Sirmione at the Lake Garda in Italy (2003).

The selection of St. Wolfgang was not a choice by chance but the result of an invitation: The Symposium would not have been such a success without the support of our Austrian distributor ***Dr. Ch. Müller***, head of Müller Laboratory Diagnostics, and his team who took the opportunity to celebrate 25 years of successful co-operation with Sysmex Europe in their home country.

Fig. 2 The premises of the venue were located directly on the lake shore.

The Motto of the symposium was AOKI, the abbreviation for Sysmex's concepts and solutions in **A**nalytics, **O**rganisation, **K**nowledge and **I**nformation. In addition, AOKI is a pun, standing for "blue tree" in Japanese language. The outstanding lectures covered many aspects of automated cell identification and counting in haematology, new parameters and clinical applications, integrated laboratory concepts, and state of the art test result interpretation and transmission. The symposium attracted more than 380 visitors from all over Europe, and even guests from America, Africa and Asia found their way to St. Wolfgang.

After the opening of the Symposium by ***Mr. T. Reinecke***, Director of Scientific Marketing in Sysmex Europe, and very warm welcome addresses by ***Mr. H. Ietsugu*** from Japan, Sysmex's President and CEO, and ***Dr. Ch. Müller*** from Vienna, we went straight into the science. ***Prof. M. Müller*** from Vienna, Austria, President of the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), gave the keynote lecture. He discussed the challenges for the clinical laboratory in a changing environment. The traditional analytically focused laboratory is turned into one where analytics is an integrated part of the whole patient management process, where the output is not just numbers but results with interpretation and, if possible, a diagnosis. Today's smart information technology (IT) solutions allow the laboratory to be in continuous communication not only with its point of care (POC) satellites, but with all departments in the hospital and, beyond that, to be an integrated part of a comprehensive healthcare network.

Fig. 3 Professor M. Müller from Vienna presenting the challenges for the clinical laboratory in his keynote lecture.

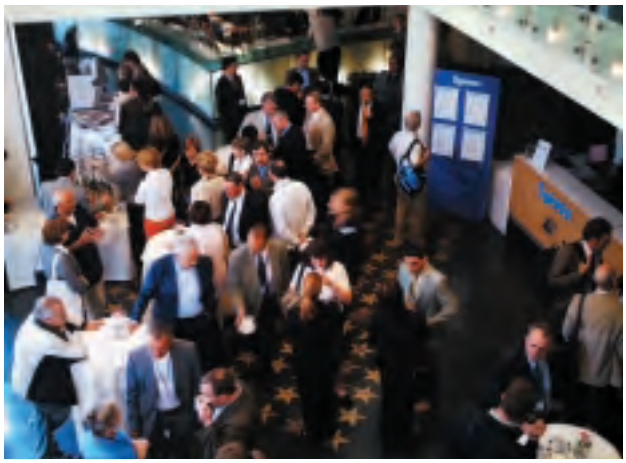

Fig. 4 Symposium break - Desire a coffee? Want to chat? Like to study a poster?

The first sessions focused on the letters A and the K of the AOKI concept - analytics and knowledge. The lectures described the clinical use of new haematological parameters on the Sysmex XE-2100. ***Dr. P. Danise*** from Salerno, Italy, explained the potential use of nucleated red blood cells (NRBC) and soluble transferrin receptor (sTfR) for approaching a difficult question: distinguishing thalassaemia intermedia from S-beta thalassaemia and from hereditary sphaerocytosis. ***Prof. F. Cymbalista*** from Paris, France, studied several parameters on Sysmex's XE-2100 to develop an algorithm for identifying myelodysplastic syndrome (MDS). A promising indicator was a low mean side scatter of the neutrophil cluster (NEUT-X), especially in the presence of a low or normal neutrophil count. ***Prof. L. Thomas*** from Frankfurt, Germany, showed in his lecture how we can improve the monitoring of erythropoietin therapy in patients with anaemia of chronic disease (ACD) by measuring the reticulocyte haemoglobin content (RET-He) and the so called ferritin index (sTfR / log ferritin). Monitoring of RET-He and the ferritin index over the first 10 days of therapy allows to easily distinguish patients responding to the therapy from non-responders. ***Ms. C. Briggs*** and ***Prof. S. Machin***, both from London, UK, demonstrated the clinical utility of the most recent parameter on the Sysmex XE-2100, the immature platelet fraction (IPF), for the differential diagnosis of thrombocytopenia: A low platelet count with high IPF is typically seen in diseases with increased platelet consumption whereas a low platelet count with low or normal IPF reflects the bone marrow's platelet production failure. Another potential use of IPF was shown by ***Dr. J. Blatny*** from Brno, Czech Republic: together with the immature reticulocyte fraction (IRF) it may help predicting bone marrow restitution in children with febrile neutropenia.

In the afternoon, ***Dr. A. Stachon*** from Bochum, Germany, showed us convincing evidence that nucleated red blood cells (NRBC) are highly predictive with regard to in-hospital mortality. This opens the possibility to identify patients at high risk as a first step to individualised treatment. ***Dr. D. Frings*** from Hamburg has investigated immature granulocytes (IG) and immature myeloid information (IMI) as diagnostic and prognostic markers in systemic inflammatory response syndrome (SIRS) and sepsis. He has compared IG and IMI to various cytokines and to well established prognostic scores, such as the simplified acute physiology score (SAPS II) and the sepsis-related organ failure assessment (SOFA) score. The goal is to find highly prognostic, easy to use markers for these clinical conditions. ***Dr. Th. Orlikowsky*** from Tübingen, Germany, is working on the challenge of detecting early onset bacterial infection (EOBI) in newborns. His preliminary data show that the IMI count is superior to microscopy and similar to interleukin 8 (IL8) measurement.

Counting leukocytes in cerebrospinal fluid (CSF) microscopically is tedious. ***Dr. F. Haukamp*** from Minden, Germany, has evaluated the Sysmex XE-2100 for this purpose. He could prove that both methods correlate very well. No false normal results and only 3% false elevated results were observed with the comfortable and speedy automatic count.

In diseases like haemolytic uraemic syndrome (HUS) and thrombotic microangiopathies the microscopic identification of fragmented red blood cells (FRC) is of diagnostic importance. ***Dr. K. Saigo*** from Kobe, Japan, demonstrated how the often subjective and laborious investigation of the blood films can be replaced by automated FRC counting on the Sysmex XE-2100. The last presentation of this day dealt with high fluorescence lymphocytes (HFL), a group of cells forming a separate cluster in the Sysmex XE-2100 leukocyte differential scattergram. By employing different specific antibodies in a flow cytometric assay ***Dr. V. Jennissen*** from Cologne, Germany, could show that HFL are in fact activated B lymphocytes. This parameter could possibly contribute to diagnosis and monitoring of bacterial or viral infections.

It was a long, inspiring day, packed with valuable clinical information. A boat trip on the Lake Wolfgang was just the right thing to let us cool off a bit, relax, have a drink, chat with customers and colleagues and learn about laboratory medicine in all the different countries. A superb dinner concluded the first day of the venue.

Day two was dedicated to the AOKI letters O and I - organisation and information. ***Dr. W. van Gelder*** from Dordrecht, The Netherlands, got it straight: Time is mature for digital microscopy. The CellaVision DM96 is an instrument that automatically examines blood films and classifies the cells using a computerised pattern recognition algorithm based on a neural network. It's so simple! And it is not only convenient but also very precise and accurate. ***Prof. P. Sinha*** from Klagenfurt, Austria, has evaluated the work area manger Sysmex Information System (SIS). He explained to us that the rule set for technical validation within SIS could significantly speed up the technical validation and thereby decrease the turn-around time between test order and result report. ***Prof. A. Huber*** from Aarau, Switzerland, explained how he has been able to streamline laboratory processes in haematology by using a modern information

Fig. 5 Relaxing discussions during a boat trip after an inspiring symposium day.

technology (IT) approach, resulting in improved documentation and communication. The introduction of tele-haematology now brings the expert's view directly to smaller hospitals where a specialised haematologist is not available. ***Dr. E. Werle*** from Neubrandenburg, Germany, uses the Sysmex ECLAIR communication software. This IT concept provides rapid delivery of result reports, an intelligent interactive order entry and many other features, allowing an effective and efficient collaboration between the laboratory and the other parties in the hospital.

LaXXI stands for "The Laboratory of the 21st Century". ***Dr. R. Dorizzi*** from Verona, Italy, presented us some thought-provoking ideas about how to escape drowning in the overwhelming flood of data that we forage on as "informavores" every day. How to digest the information? How to distil knowledge from it? How to identify the useful content? Usefulness = (relevance x validity) / effort! We need modern IT technologies to assure that useful, reliable information and knowledge is presented in the right format and at the right time to the persons who need it. (Abstracts from all lectures are published on the following pages.)

Fig. 6 Enjoying the mild evening temperature outside after the symposium dinner.

Sysmex has embarked to spearhead the development of modern technology for the clinical laboratory and strongly supports the endeavour to develop clinical applications for new parameters. As a logical consequence, ***Dr. M. Schaefer***, President of Sysmex Europe, proudly announced that Sysmex Europe has created the "Sysmex Outstanding Science Award" that will be sponsored with more than € 50,000 over the next two years to honour excellent scientific work improving cellular diagnostics in haematology and its clinical applications. The first of these Awards is called "The Robert Martin Rowan Memorial Award" in memoriam Dr. R. M. Rowan, the scientific advisor of Sysmex, enthusiastic teacher, chair in many symposia and good friend to many of us, who passed away recently. Application forms for this European award will be available soon.

After a second day of inspiring lectures and fruitful discussions it was time to say goodbye. ***Mr. I. Matsui***, President of Sysmex Europe, closed the successful and very much appreciated meeting. But don't worry - we will carry on. See you next time...?

Program of the Sysmex European Symposium 2005

– Sysmex Solutions in Analytics, Organisation, Knowledge, Information –

Date : Wednesday, June 1 『**ANALYTICS & KNOWLEDGE**』

Program	Speaker	Chairman
Welcome address	*Dr. Müller, and Mr. Ietsugu*	
Keynote Lecture: The Challenges for the Clinical Laboratory in a Changing Environment	*Prof. Müller*	*Prof. d'Onofrio*
NRBC in Thalassaemia Syndromes	*Dr. Danise*	
Usefulness of XE-2100 Structural Parameters in the Diagnosis of Myelodysplastic Syndrome (MDS)	*Prof. Cymbalista*	
Evaluation of a Diagnostic Diagram for Monitoring of rHuEPO Therapy in Patients with Anemia of Chronic Disease	*Prof. Thomas*	
Automated Analysis of the Immature Platelet Fraction (IPF)	*Mrs. Briggs*	*Prof. Schwarzinger*
The Immature Platelet Fraction (IPF) : Its Clinical Utility in the Differential Diagnosis of Thrombocytopenia and Guide to Platelet Transfusion Requirement Post Haemopoietic Stem Cell Transplantation	*Prof. Machin*	
Bone Marrow Restitution by Measurement of IRF and IPF in Children	*Dr. Blatny*	
NRBC Counts for Risk Assessment in Hospitalized Patients	*Dr. Stachon*	*Prof. Thomas*
IG, IMI and NRBC as Parameters in Diagnosis of Sepsis and SIRS	*Dr. Frings*	
Automated Detection of Immature Myeloid Precursors in Healthy Newborns and those with Early Onset Bacterial Infection (EOBI)	*Dr. Orlikowsky*	
Comparison of Leucocyte Counting in Cerebrospinal Fluid by the XE-2100 and Fuchs-Rosenthal-Chamber	*Dr. Haukamp*	*Prof. Machin*
Automated Detection of Fragmented Red Cells with the XE-2100	*Dr. Saigo*	
Automated Detection of High Fluorescence Lymphocytes Count (HFL) with the Sysmex XE-2100	*Dr. Jennissen*	

Date : Thursday, June 2 『**ORGANISATION & INFORMATION**』

Program	Speaker	Chairman
Digital Microscopy (DM96/DM8): From Virtual Differentiation to a Virtual Technologist?	*Dr. van Gelder*	*Prof. Müller*
The Need for Standardised Technical Validation of the Haematology Workflow	*Prof. Sinha*	
Laboratory Organisation and Networking Concepts in a Modern Lab	*Prof. Huber*	
Information Management for Hospital Laboratories in a Changing Health Care System	*Dr. Werle*	*Prof. Huber*
Laboratory Information System Management or Laboratory Knowledge Management? The Laboratory of the 21st centurty (LaXXI)	*Dr. Dorizzi*	
Sysmex Scientific Award	*Dr. Schaefer*	
Closing remarks	*Mr. Matsui*	