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LETTER

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Pakistan Society of Haematology



President's Column

It gives me an immense pleasure to thank all members of PSH for giving me an opportunity to serve Pakistan Society of Haematology as its president. I congratulate the newly elected President-Elect, Maj Gen Suhaib Ahmed, the Secretary, Dr Nadeem Ikram and all members of the executive council of PSH on assuming their offices.

I felicitate all my predecessors, especially Maj Gen (R) Masood Anwar, who tirelessly worked to raise this esteemed society to its present heights. Today the society has nearly 170 members, and is recognized as one of the most prestigious professional bodies in the country. At this juncture, I invite all the members to come forwards and help me build the society further.

Over the past two months I have had discussions with many members, particularly with those who came to Peshawar to attend the recently held 11th National Conference of PSH. I will soon be communicating with you regarding the proposal to be undertaken in the over the next two years. Meanwhile, we are updating the PSH website with relevant entries of all members. Soon, we will be sending you your login name and passwords. We would like to make this website more useful, especially to our younger colleagues, and I would request you to give your suggestions in this regard. We also intend to start a forum on the website for interaction on interesting cases.

Activities of the local chapters are an important part of the mandate of PSH. Rawalpindi-Islamabad chapter is well organized, and is holding its academic activities almost regularly. Lahore chapter, with the initiative of Dr Nisar Ahmed and other colleagues, is also coming into shape, and has already held its first meeting on 1st March 2009. I am sure that soon local chapters of Karachi, Peshawar and Quetta will also initiate their activities.

Societies are strong only with participation of members in their activities. I congratulate our Peshawar chapter for holding a successful 'National Conference', and Dr Tahir Shamsi for organizing 'Haematology Updates'.

In the end, I will request all Haematologists and Postgraduate Trainees in Haematology who are not members of PSH as yet, to become members. The membership forms and relevant details can be downloaded from the website.

With regards,
Professor Khalid Hassan

Events of The 11th Annual Haematology Conference, Held at Khyber Medical College Peshawar, from 14-15th February 2009

The 11th Annual Haematology Conference was held at Khyber Medical College Peshawar, from 14-15th February 2009. A total of 67 haematologists from all over Pakistan- Karachi, Lahore, Rawalpindi/ Islamabad, Faisalabad, Abbottabad and Larkana attended the conference.

Pre-conference workshops were held on 13th February 2009 on "Blood cell morphology". It was attended by 30 trainee haematologists. The facilitators were Maj Nighat shahbaz & Prof Dr. Akhtar Zarin Khattak, and the coordinator was Brig Muhammad Ayyub from AFIT Rawalpindi. Interesting cases of haematology were discussed. Second workshop was conducted on MDS, the facilitator was Prof Khalid Hassan, while co-ordinators were Dr Shah Taj & Dr Hameeda Qureshi.



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Executive council meeting of PSH was held in the evening of 13th February 2009. The conference inaugural ceremony was held on 14th February 2009. Renowned haematologist, Prof Dr Mohammad Khursheed from AKUH, Karachi was the chief guest. Razi Lecture was also delivered by him on "Haematology and undergraduate medical education". Senior professors from various disciplines took keen interest in the discussion following Razi lecture. Four scientific sessions were conducted and over 35 scientific research papers on bleeding disorders, haemoglobinopathies & lymphoproliferative disorders etc were presented. Best paper prize was awarded to Dr Hina Peter from AFIP Rawalpindi. General body meeting was held in the evening on 14th Feb 2009. It was well attended by all the members. The interactive session was arranged for trainees on 15th Feb. The topic of the session was "thalassaemia". Coordinator of the session was Maj Gen Suhaib Ahmed from AFIP Rawalpindi. It was very informative and appreciated by all the participants. Brig Sajid Mushtaq from AFIP Rawalpindi delivered a lecture on "What a haematologist should know about malignant Lymphoma"? All the haematologists found it very useful for their day to day practice. After the final scientific session on 15th Feb 2009, the closing ceremony was held. The principal Khyber Medical College Peshawar, Prof Fazal Ahmed gave shields to the members of organizing committee and finally vote of thanks was given by Secretary organizing committee for all the students, sponsors, staff of KMC, who made this conference a success.





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Glimpses of PSH Educational Activities

3rd FCPS intensive course was held on from 26th-29th January 2009 at The Children's Hospital & The Institute of Child Health, Lahore

The 3rd FCPS intensive course was held on from 26th-29th January 2009 at The Children's Hospital & The Institute of Child Health, Lahore with maximum participation from FCPS trainee from all over the country. Dr. Nisar Ahmed alongwith the efforts of rest of the faculty conducted this four day course particularly for trainees nearing their completion of residency.

The programme started off with a welcome address by Prof. Tahir Masood, Dean of The Children's Hospital & The Institute of Child Health, Lahore. Prof. A.H Nagi from UHS was the Chief Guest. **The first day** covered all aspects of transfusion medicine and blood banking with emphasis on evidence based medicine and lab techniques. Brig. Mohammad Ayyub gave a comprehensive discussion on ABO discrepancies whereas Dr. Sabah Jamal covered basic concepts in transfusion medicine. Dr. Shahida Mohsin, Dr. Mona Aziz, Dr. Nadia Sajid, Dr. Muneza Natiq, Dr. Rabia Nadeem conducted the discussion session after a short lunch break.

The second day focused on coagulation medicine and practical hurdles faced by trainee in the lab. Col. Dr. Tahir Jameel talked about Inhibitor identification and quantification followed by real life case scenarios presented by Dr. Tahira Zafar. A hand on training on coagulation was followed by case presentation by Dr. Javaria Ejaz.

Day three and four focused on blood morphology and case scenarios. Lymphoma updates were delivered by Dr. Asad Hayat and Dr. Tariq Mehmood. Dr. Tahir Shamsi conducted the morphology sessions followed by interactive discussion with the trainees. Maj Gen. Retd. Dr. Masood Anwar, Dr. Tahir Shamsi and Dr. Saqib Ansari pointed out the common mistakes that trainee make during examinations. The 3rd FCPS Intensive course concluded with appreciation remarks and certificate distribution from Prof. Mohammad Amjad, Controller Examination CPSP, Lahore, and Prof. Dr. Tahir Masood, Dean, The Children's Hospital & The Institute of Child Health, Lahore.



**Prof A.H Nagi
addressing the
Inaugural Session as
the Chief Guest**

PSH Lahore Chapter Meeting

With the grace of Allah & support from President PSH, Prof. Khalid Hassan, PSH Lahore chapter has started its monthly meeting. First PSH Lahore chapter meeting was held on 03-03-2009 on 9.00am at the Haematology & Transfusion Medicine Division of The Children's Hospital & The Institute of Child Health, Lahore. Dr. Mansoor Hussian presented "Pancytopenia in Children presenting as acute leukaemia". The presentation was followed by very interactive discussion by about 27 participates. Meeting ended with a cup of tea. It was decided that a local chapter meeting will be held on the first Thursday of every month.

"Haematology Oncology Update 2009"

Held at the Pearl Continental Hotel Karachi on 28th March 2009

National Institute of Blood Disease & Bone Marrow Transplantation (NIBD) organized "Haematology Oncology Update 2009" on 28th March 2009 at the Pearl Continental Hotel Karachi. More than 350 haematologist, oncologist & paediatrician from across the country participated in it. Director General Health, Professor Rashid Jooma was the chief guest while the Head of Haematology of Aga Khan Hospital, Professor Dr Salman Adil was the guest of honour. Meeting started with a plenary session covering Key-Note speech by Dr Nadeem Abbasi on "Integrated Approach in Haematology-Oncology". This was followed by a lecture in recent advances in the management of CML and bone marrow transplantation. After tea break, there were 3 parallel sessions on "Adult Haematology-Oncology", "Integrated Approach in Head & Neck Cancer" and "Paediatric Haematology". After Lunch, "Case presentation session", "Iron Chelation in Thalassaemia" and "Uro-Oncology Sessions" were the highlight. There was great enthusiasm in the participants who were actively involved in the deliberation and interactive sessions. NIBD Director Dr Tahir Shamsi announced that next Haematology-Oncology Update 2010 will be held in March next year in Karachi. Quality assurance is defined by WHO as the total process ensuring *right result at the right time on the right specimen from the right patient* with interpretation based on correct reference



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data. Implementation of quality assurance is essential to achieve reliable test results, quality service to patients, safe working environment and cost effective use of resources. The term quality control covers that part of quality assurance which is mainly concerned with the control of errors in performance of tests and verification of test results. It includes internal and external quality control.

Internal quality control includes monitoring of laboratory performance by using control material and/or repeated measurement on routine specimens. The results are analysed statistically for detection of errors and it is followed by corrective measures to produce reliable laboratory results. External quality control is the evaluation of a laboratory by an independent agency that analyzes the performance of many laboratories. Control samples are sent to the participating labs at regular intervals and the results are sent back to the regulating agency. Performance of each lab is checked against the actual results and the results of all participating labs. The purpose of external quality control is to confirm that the laboratory's internal quality control measures are working satisfactorily. In developing countries with limited resources participation in an international, national or even local regional external quality control programme may be difficult. Therefore, in laboratories with limited resources highest level of skills and motivation are required for maintaining quality. Even the most basic laboratories must try and ensure that procedures for quality assurance are in place.

FUTURE EVENTS

Hematology Conference at NIBD, Karachi in Collaboration with PSH 16-18 October 2009

National Institute of Blood Disease & Bone Marrow Transplantation (NIBD) is organizing a "Haematology Conference" in collaboration with Pakistan Society of Haematology on 16-18 October 2009 in Karachi. Theme of this conference is "Haematology in the Next Decade". There will be Thematic presentations, interactive sessions with other clinical disciplines, free paper sessions and an interactive session on how to prepare for the exam for postgraduate trainees. Pre-conference workshop on haematopathology will be the highlight. All PSH members and trainees are welcome to participate. For info, please contact: Mr Akif Ali on info@nibd.edu.pk; or visit www.nibd.edu.pk for more information.

13th PSH Annual Hematology Conference will be held at Lahore Dates and venue will be announced later

QUALITY ASSURANCE FOR HAEMATOLOGY LABS IN DEVELOPING COUNTRIES

Maj Gen Suhaib Ahmed
MBBS, MCPS, FCPS (Pak), PhD (London)

Dr. Faiza Fahim
MBBS, FCPS (Pak)

General measures

- The laboratories must have adequate space and environmental conditions necessary for conducting the services offered.
- Safety precautions must be established, displayed and observed to ensure protection from physical, chemical, biochemical and electrical hazards and bio-hazardous materials.
- The doors in the laboratory should always be closed.
- The work areas, equipment and supplies should be arranged for efficient workflow and should be kept free of dust. Benches should be swabbed at least once a day with an appropriate disinfectant.
- Every procedure performed in the lab must be written out exactly as performed and be kept in the lab for easy reference. These should be periodically reviewed and any changes made should be dated.
- All records should be retained for at least two years.
- Frequent electricity breakdowns can adversely affect the overall functioning of the lab. All sensitive equipment like cell counters and other automated analyzers must have a backup electric supply. The commonly available UPSs that are in domestic use generate a square wave electric current that can be very harmful for the computerized lab equipment. All such equipment should have a sine wave un-interrupted power supply. The UPSs used should be of appropriate power. Some lab equipment like incubators, water baths, and water distillation plants use maximum electric power and these should not be placed on UPS.
- Loose power connections can be another source of instrument malfunction. Adequate attention must be paid to electric wiring. Loose connections and inappropriate electric wiring can be a fire hazard in a lab.



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- In a large or a medium sized lab a central generator supply with UPSs for individual instruments can be a good combination to tackle power breakdowns. Refrigerators used for storage of blood and reagents/kits etc. should also be put on generator supply. The generator used should have the capacity well in excess of the total power load. It may be advisable to keep the high power consuming equipment like air conditioners and water baths etc. off the generator supply.

Specific measures

- The errors in a lab may occur at the pre-analytical, analytical or post-analytical stages. Specific measures for each stage are as follows:

Pre-analytical Stage

- Indication of the test with clinical notes should be clearly written on the request forms.
- Specialized haematology tests like bone marrow examination, haemoglobin studies, and tests of haemostatic function should be done after history and examination of the patient. Previous history of treatment or transfusion of blood and its products can mask the underlying disorder and may create a considerable confusion in interpretation of data.
- The container should be labelled before sample collection.
- Tourniquet should not be applied too tightly or for too long as it would lead to venous stasis and false results.
- When collecting capillary blood excessive squeezing of a finger or infant's heel may cause dilution of the sample with tissue fluid.
- Blood should not be collected from a vein with intravenous infusion.
- The sample should be taken in a correct container. Insufficient or excess anticoagulant or inadequate mixing of the blood with the anticoagulant may result in errors.
- The needle should be removed from syringe before dispensing blood in to a container otherwise it may cause haemolysis.
- The samples should be transported to the lab as early as is possible.

Analytical Stage

- Reagents and kits should be adequately stored as per manufacturer's instructions. The temperature of the refrigerators and blood banks must be checked at periodical intervals.
- The use of expired reagents can be detrimental in quality of results. If an expired reagent or kit is used then the test must include positive as well as negative controls. The controls so used must be of good quality!
It is a common practice in under resourced labs to make modifications while using commercial kits. Reagent economy to carry out greater number of tests by the same kit can be done provided good positive and negative controls are employed. Such modifications are better avoided when carrying out tests of critical importance.
- Reagents and samples requiring frequent freeze thawing should be stored in aliquots.
- The test should be done within the desired time and under recommended conditions. For example prothrombin time done on a sample left at room temperature for over four hours or in a water bath below 37°C is certain to give an incorrect result.
- The samples must be adequately mixed before testing.
- Inaccurate pipetting and failure to wipe the outside surface of the tips are common causes of errors and should be avoided.
- Failure to calibrate automated pipettes is an important cause of systematic errors. Accuracy of automated pipettes should be checked at least every three months. A simple guide is that 100 µl of distilled water taken in a pipette should weigh 100 mg.
- Manual pipetting, apart from being a health hazard, may be inaccurate due to errors in reading menisci and broken tips. Manual pipetting should be replaced by automated pipetting.
- The automated haematology equipment must be calibrated by using commercial standards called "calibrators". Instruments require calibration on first installation, after a major repair, or when indicated by the results of internal or external quality control procedures. Instrument calibration is complicated and is better done by a qualified person from the instrument supplier.
- The quality of each test, including accuracy and precision, must be monitored by appropriate control material. Controls are solutions of known concentration in which values vary within a range. They are used to check the quality of laboratory results. A good control should be stable, available in vials or aliquots, with little vial to vial variation and should preferably be of the same material as the specimen. Controls in haematology are available commercially but these are expensive and are often beyond the reach of resource constrained laboratory.
Simple "in house" control for blood cell counters can be prepared as follows (Dacie & Lewis, Practical Haematology, 10th Edition)
- Manual pipetting, apart from being a health hazard, may be inaccurate due to errors in reading menisci and broken tips. Manual pipetting should be replaced by automated pipetting.
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- Simple "in house" control for blood cell counters can be prepared as follows (Dacie & Lewis, Practical Haematology, 10th Edition):
 - Collect a unit of human blood in CPD anticoagulant not older than one day. It should be thoroughly screened for HCV, HBV and HIV.
 - Blood should be filtered through a transfusion set into a glass bottle.
 - Add 1 ml of fresh 40% formaldehyde. Mix well and leave on a roller mixer for 1 hour.
 - Leave at 4°C for 7 days, mixing by inverting a few times each day. At the end of this period mix well on a roller mixer for 20 minutes and then with constant mixing by hand dispense in 2 ml volumes into sterile containers.
 - The control material should be stable for 3 weeks at 4°C.
 - Assign values for Hb and cell counts by at least 5 replicate tests.
- Appropriate controls, commercial or in house, should be run with every batch of patients' specimens. If possible controls with high, low and normal values should be used. The controls should be treated exactly as the patient samples. The results of controls are most commonly recorded on Levey Jennings charts. However, if these are not available then a simple linear graph paper can be used. A horizontal line is drawn to represent the mean and on an appropriate scale of quantity, lines representing +2 SD and -2 SD are drawn above and below the mean. The results of successive control runs are plotted on the charts.
- When the quality control test is satisfactory sequential results fluctuate around the mean and the results fall within the ± 2 SD lines. A failing quality control test is indicated by:
 - Any result outside ± 3 SD.
 - More than one result on or beyond ± 2 SD (random error).
 - Several consecutive results on one side of the mean (consistent error).
 - Consecutive fluctuating results falling and rising by ± 2 SD
- A failed quality control test may be repeated with a fresh batch of control sample. When confirmed it must be investigated to look for:
 - A faulty reagent (expired etc.) or lab ware (pipettes etc.).
 - Faulty instrument calibration.
 - Technical error.
 - Clerical error of documentation of control results.
- In small laboratories with limited resources duplicate tests on patients' specimens can also be used to check precision of the results. Correlation checks are another way of maintaining quality. For example low MCH and MCV, low or high white cell and platelet count can be checked by examination of a well prepared blood smear.

Post Analytical Stage

- The most common errors at this stage are clerical. These can be minimized by thorough scrutiny of the results before their authorization for printing.
- Any errors of calculation should be checked.
- When a test result is seriously abnormal or unexpected, the samples must be checked for clots and when possible the test should be repeated.
- A reference range for the quantitative tests should be provided.
- It is always better to give an interpretation of the test results with a possible diagnosis and suggested further investigations.
- Adequate clinical notes on the request forms are always helpful in interpreting the results and giving an opinion.
- Urgent test results should be communicated immediately via fax or telephone.

Your views and news

Dear Colleagues : Your contributions to PSH newsletter are backbone to its success. Please send short communications, case reports, scientific activities and developments in your departments and issues of common interest. Photographs of scientific events/meetings are also welcome. Members are requested to visit PSH website and post in their contributions.

Update Address

Please update your addresses in case there is any change in it. All members are requested to email us their mobile/phone contact and email address.

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 **LEUKOKINE Inj.**
Filgrastim / r-metHuG-CSF

THROMBOMAX

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