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From My Keyboard

Many countries in Africa have little resources in their healthcare systems such that undependable laboratory results will only support a view that laboratories are unhelpful and compromise patient care.

The problems in laboratory testing in these countries are inconsistent and unique between and within countries and go beyond the claimed financial constrains. There is severe insufficient monitoring of quality of specimens collected and results reported and these impact negatively on patient care.

Laboratory medicine technology has grown so much that patient diagnosis is now more of laboratory diagnosis than clinical diagnosis.

One can get away with clinical diagnosis in areas of high incidence of a particular disease; however in places where the disease is not common, diagnosis based on clinical symptoms can be non specific, unreliable and coupled with increased mortality.

One study in Botswana found evidence of TB infection in only 52% of 229 patients with suspected TB thus showing the dangers of relying on clinical diagnosis alone.

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Inside this Issue

Tiger Design and Graphics

Dr. Jean A. Kalilani and other invited guests at the World Hypertension Day celebrations in Gaborone, May 19 2007

DIAGNOFIRM MEDICAL LABORATORIES

Recent And Upcoming Events @ Diagnofirm

Most people in Botswana seem to have caught up with wellness assessment campaign. This is evidenced by the number of companies and organizations inviting us to take part in the wellness assessment programs for their staff members. The first half of the year saw Diagnofirm in Moshupa together with the Cardiac Clinic for the wellness assessment of villagers. NIIT also arranged a wellness day for all their students which was a wonderful arrangement as this introduces younger people to the concept of good health before things really get out of hand. World Hypertension Day was celebrated in style at the Main Mall in Gaborone and it provided a chance for all those who came to have their blood pressure and blood glucose tested for free. It was an occasion graced by several companies that sell medicine and medical devices. The Masisi Organ Donor Foundation is breaking new grounds and doing a great job in Botswana and Diagnofirm is proud to be associated with their wonderful work. On the 18th of August 2007, the Masisi Foundation was launching its work in Kanye at the Motse Lodge. It was quite a colourful day and Diagnofirm was there to test people for free and help ascertain their health status.

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by: Munya. P. Mangwendeza

Urine Samples And Their Anaylsis

As we move towards more home based testing, point of care testing and less invasive testing methods, urine is becoming one of the most useful specimens used in clinical assessments.

Urine is important in clinical diagnosis of disease. However the quality of the clinical information obtained from urine specimens is determined by:

a. **the collection method used,**
b. **timing of sample collection**
c. **as well as the handling of the specimen once it has been collected.**

Several types of urine specimens can be collected and different types of containers with or without preservatives can be used and this depends on the test requested by the doctor.

Specimen collection and transport guidelines

All containers used should be leak proof to avoid contamination and protect the laboratory scientists from potential infection. They should be clean and free form particles. Amber coloured containers should be use for photosensitive analytes. Containers should be well labeled and the labeling should be on the container itself not the lid.

After collection, urine specimens should be analyzed within 2 hours. If this is not possible the specimen should be refrigerated immediately or preserved for later analysis. Boric acid is the best preservative for urine culture and sensitivity specimens. It allows the urine to be kept at room temperature while still providing results comparable to those of refrigerated urine for up to 72 hours.

Types of urine specimens

Random specimens	• these are the most commonly collected urine specimens. They are easy to collect and are readily available. Normally used for urinalysis and microscopic analysis although they are not the ideal specimen for this type of test. Usually give a false view of the patient's health as they are too dilute and analytes are usually lowered.
First morning specimen	• specimen of choice for urinalysis and microscopic analysis because the urine is more concentrated due to the fact that it will have stayed in the bladder for a longer time. It generally has a higher concentration of cellular elements and analytes. To prepare for this specimen a patient is instructed to empty their bladder before they go to bed and then collect the specimen in the morning.
Mid-stream urine clean catch urine	• this is the preferred type of specimen for culture and sensitivity testing. There is reduced incidence of cellular and microbial contamination. Patients are required to first clean the urethral area, void the first portion of the urine stream into the toilet, collect the midstream urine into a clean container and then void the rest into the toilet.
Timed specimens	• required for tests such as creatinine clearance, glucose, sodium, catecholamines e.t.c which are affected by diurnal variations. The samples have concentrations of analytes over a specified length of time. Accurate timings are critical for calculations to determine analyte concentrations and ratios. Interpretations based on faulty calculations can result in improper diagnosis or medical treatment.
Catheter collection specimens	• collected when a patient is bed ridden or cannot urinate independently.
Suprapubic aspiration specimen	• collected when a patient cannot be catheterized or when a sterile specimen is required.
Paeditric urine specimens	• collected form infants and small children. Urine from nappies is not recommended for laboratory testing since contamination form the nappy may affect the results.

Other preservatives include hydrochloric acid used for VMA 24 hour urine testing. Glacial acetic acid can also be substituted for boric acid and hydrochloric acid as a preservative. Amber colored containers should be used for urine collection when the analytes to be tested are photo-sensitive for example porphyrins and urobilinogen. Only specimens collected in containers without a preservative can be used for urinalysis and should be handled following strict timing and refrigeration guidelines.

Specimen handling guidelines

- Labels should have the full names and other forms of identification like the date of birth and requesting doctor as well as tests requested.
- ·Sufficient volume for the tests should be collected and enough should be collected to allow for the correct specimen to preservative ratio to be attained.
- Collection date and time must be clearly labeled on the container and should be verified by the laboratory.
- The method of collection should also be stated so that it can be verified whether the correct specimen was collected for the tests requested.
- Proper preservative - always ensure that the urine sample received has preservatives or was correctly refrigerated or is within the allowed 2 hours period.
- Light protections - ensure that all specimens that need analysis for analytes that are photosensitive were collected in amber bottles or were protected from light during transportation.

Urinalysis

- Urinalysis should only be done on an uncentrifuged specimen.
- Refrigerated specimens must always be allowed to reach room temperature before being analysed because the enzymatic reactions on the reagent strips are temperature dependent.
- Always follow the manufacturer's directions for conditions of handling, levels of sensitivity and interferences of the tests.
- Be aware that reagent strips deteriorate when exposed to moisture, sunlight, heat and volatile chemicals.
- The reagent strips must never be refrigerated or made to freeze. They

should always be kept at room temperature. The strips should also be kept in their original container, do not transfer into a secondary container.

- Do not use expired reagent strips and always label with the date opened and use within the 'once opened' expiry date.
- Always monitor the deterioration of the reagent test pads by matching a dry reagent strip to the negative pattern on the container to ensure the colours are stable.
- Accurate timing is important in obtaining a valid result. A timer should always be used for the tests.
- Good lighting is also important when reading the strips because at times reaction colours are similar.
- Do not allow urine to run between the pads or the reaction chemicals can be altered. Prevent this by running the edge of the strip along the tube. Follow up by blotting the edge of the strip on a paper towel. This will minimize excess urine on the reaction pads. While waiting to read the strip always keep it horizontal.
- If automated analyzers are being used to read the strips, good laboratory practice should be followed. Instruments should be calibrated and maintained and proper QC should be performed as described by manufacturer and laboratory policies.

URINALYSIS TEST	
Colour	• normal urine is colourless to pale yellow. The colour can be altered by such things as medication, dyes and diet. Always query this whenever the urine has an unusual colour and note this at all times in the results report. Abnormal colours can affect the dipsticks results by causing a colourimetric reaction that may be misinterpreted by the laboratory scientist or the instrument and give incorrect results.
Clarity	• normal urine is clear. Clarity gives an indication as to how the urine specimen was handled. If urine is old and unpreserved it becomes cloudy from bacterial overgrowth. If it was refrigerated, amorphous urates can cause temporary cloudiness which dissolves when the specimen is brought to room temperature. Collection time and storage conditions should be reviewed all the time to determine if cloudiness may be due to storage conditions. Other causes of cloudiness are mucus, crystals, leucocytes, epithelial cells and fat.
Specific gravity	• determined by the number, amount and weight, of solutes in the specimen. It serves as a measure of the kidney's ability to dilute and concentrate urine. Dehydration, diarrhea, antibiotics can all cause elevated results. High fluid intake or consumption of diuretics can cause low measurements coz of low quantity of dissolved particles in large volume of fluid.
pH	• this indicates whether the urine is acidic or alkaline and the normal values are between 5-7. Helps predict what may be seen in the urine microscopically as different types of crystals exist at different pHs. For example uric acid or calcium oxalate crystals exist in acidic urine and calcium carbonate or magnesium phosphate occurs in alkaline urine. Bacterial overgrowth at room temperature produces a higher pH due to conversion of urea to ammonia. Starvation and diarrhea produce more acidic urine.
Proteins	• measure kidney function. Normal urine does not contain proteins. False positive results can be obtained from residue disinfectants in the urine containers. Strenuous exercises can result in high results. Dilute specimens, mental stress and exposure to extreme heat or cold can produce false negative results.
Blood	• can be detected in the form of red blood cells, free haemoglobin or myoglobin. Consumption of coloured medications or the presence of microbial peroxidase reaction from bacterial presence can give false positive results and so can collection of urine during menstrual bleeding. False negatives are obtained when formalin is used as a preservative.
Nitrites	• normal urine is negative for nitrites. Bacterial overgrowth due to improper storage gives positive nitrite test. False negative can be encountered when the sample has a high level of ascorbic acid.
Leukocyte esterase	• indicates the presence of white blood cells and is negative in normal specimens. False positive results are seen in containers with bleach or oxidizing agents. Vaginal discharges also give positive results.
Glucose	• normal urine test negative for glucose. False positives occur when the containers used are contaminated with chlorine bleach or other detergents. Refrigerated samples not allowed to reach room temperature before analysis cause false negative because of affected enzymatic reactions.
Ketone Bodies	• these are by-products of fat metabolism and results are negative in normal urine. Elevated results are encountered in starvation and alcoholism. Strenuous exercise, fever, vomiting and a high protein diet all affect the results for ketone bodies. Always keep the container closed or test immediately to avoid false negative results.
Bilirubin and urobilinogen	• both measure liver function. Samples should be kept away from light. Coloured medications which are yellow, orange or red can give false positive results.

Preservatives

Unpreserved specimens that have been not been refrigerated for more that 2 hours should not be accepted for microscopic analysis due to the increase in bacterial overgrowth and disintegration of cells and casts. Urine becomes alkaline, causing red blood cells and white blood cells to lyse and casts to dissolve if not preserved or refrigerated.

The conditions and concentrations of urine preservatives are defined for 24-hour collections as follows:

Room temperature	21°-25° C
Refrigerated	4° C
Frozen	-20° C
6N HCl	30 mL per 24-hour collection
Acetic Acid 50%	25 mL per 24-hour collection
Na2 CO3 (crystals)	5 g per 24-hour collection
Boric Acid (crystals)	10 g per 24-hour collection

Urine chemistry

Random testing of urine chemistry analytes is not usually considered valuable because of the lack of collection of these analytes at any given time in the bladder. Timed specimens especially 24-hour urine provide the most valuable information for the concentration of a specific analyte. Below are some of the analytes tested for in urine chemistry and the conditions or interferences that would cause wrong results.

Any drug which interferes with a test be discontinued until a drug free specimen can

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by Dr. Ritalin D., Pathologist, Diagnofirm Medical Laboratories.

Anatomical Pathology

Anatomical pathology is the study of organs and tissues to determine the causes and effects of particular diseases. A tissue specimen can be obtained from almost any organ or any part of the body by using various biopsy techniques. Biopsies can be taken during surgery or during an autopsy.

A biopsy is a procedure performed to remove tissue or cells from the body for examination under a microscope. Some biopsies can be performed in a doctor's office; others need to be done in a hospital setting. In addition, some biopsies require use of an anesthetic to numb the area, while others do not require any sedation.

Biopsies are usually performed to determine whether a tumor is malignant (cancerous) or to determine the cause of an unexplained infection or inflammation.

Types of biopsies:

- **Incisional Biopsy**
  This type of biopsy requires only a sampling of a portion of the lesion, and therefore is strictly of diagnostic nature.

- **Excisional Biopsy**
  This type of biopsy involves removal of the entire lesion, usually including a rim of normal tissue, and therefore the procedure serves both a diagnostic and a therapeutic function.

- **Fine needle aspiration (FNA) biopsy or fine needle aspiration cytology (FNAC)**
  This type of examination involves using a thin needle to aspirate cells and small fragments of tissue from a tumor. Local anesthetic is sometimes used to numb the area, but the test rarely causes much discomfort and leaves no scar.

- **Punch biopsy**
  Punch biopsies involve taking a deeper sample of skin with a biopsy instrument that removes a short cylinder or "apple core" of tissue. After a local anesthetic, the instrument is rotated on the surface of the skin until it cuts through all the layers including the dermis, epidermis, and the most superficial parts of the sub cutis (the fat).

- **Shave biopsy**
  This type of biopsy involves removing the top layers of by shaving it off. It is also performed with a local anesthetic.

- **Skin biopsy**
  Skin biopsies involve removing a sample of skin for examination under the microscope. The biopsy is performed under local anesthesia. The patient usually just feels a small needle stick and a little burning for about a minute, but no pain.

Common biopsy sites:

- bone marrow
- breast
- gastrointestinal tract
- kidney
- liver
- lung
- lymph nodes
- skin
- thyroid
- brain

Following a biopsy, the tissue specimen is sent to one of the following areas of anatomical pathology to be examined and analyzed:

- Surgical Pathology
- Cytology
- Autopsy

FNAC - Fine needle aspiration cytology

Fine needle aspiration cytology (FNAC) technique is relatively painless, produces a speedy result, and when applied by experienced and well trained practitioners, is highly accurate. However, it must be stressed that FNAC is not a substitute for conventional histopathology but an extremely valuable complementary diagnostic tool. The method is ideal for lesions that are easily palpable e.g. superficial growths of skin, breast lump, salivary gland lesions, superficial lymph nodes, etc. It is less demanding technologically and it is highly suitable in our country. The low risk of complications, an additional advantage, allows it to be an Out Patient Department procedure in our laboratory.

FNAC is:

- Highly suitable for debilitated patients
- Readily repeatable
- Useful for multiple lesions

FNAC diagnosis should only be attempted when the pathologist is cognizant of the details of:

- Clinical history including previous treatment e.g. radiation, chemotherapy
- Physical examination
- Results of relevant laboratory tests

The general FNAC guidelines include:

- Disease process must be localized and clearly defined by clinical examination or available radiological imaging technique.
- In unique circumstances, where the disease process is diffuse e.g. infectious diseases miliary TB, histoplasmosis, it can still be applied.
- Needles - standard disposable, 22-25 G, 30-50 mm long needles are suitable for most superficial palpable lesions. 25 G are recommended for children and for particularly sensitive areas e.g. orbit, eyelid, etc.
- Syringes - standard disposable plastic syringes of good quality, strong rigid material, and produce an effective negative pressure.
- Syringe holder - use of syringe holder is strongly recommended leaving one hand free to immobilize and fix the target lesion.
- Slides must be clean, dry and grease free. Slides with frosted ends are convenient for immediate labeling. Air dried smears are best transported in slide carriers to avoid contamination and scratching.
- Fixatives - for routine wet fixation of smears, 95% Ethanol in Coplin jar is ideal, but spray fixatives can also be used.

Bone Marrow Aspiration

Bone marrow aspiration study, including trephine biopsy, is an indispensable diagnostic tool for diseases of the blood. If performed in a correct manner, bone

marrow aspiration is simple and safe.
Advantages of bone marrow aspiration are:

- Performed as an OPD procedure
- Can be repeated
- Aspirated cells are well preserved
- Aspirated material can also be used for cytochemical stains, immunophenotyping, cytogenetic analysis.

Important pointers while making BM smears:

- Because Bone Marrow clots faster than peripheral blood, films should be made from aspirated material without any delay.
- Remainder material may be put into a bottle with EDTA and used later to make more films, for immunophenotyping.
- The slides after thorough drying can then be transported in slide carriers to prevent contamination and scratches.
- The preparation can be considered satisfactory only when marrow particles and free marrow cells can be seen on stained films.
- Aspirating a small volume of bone marrow minimizes the dilutional effect of blood.
- It is good practice to obtain a peripheral blood sample from the patient at the same time so that both specimens can be examined and stored together.
- Make films 3-5 cm in length using a smooth edged glass spreader. The marrow fragments are dragged behind the spreader and leave a trail of cells behind them
- Fix some of the films in absolute methanol as soon as they are thoroughly dry (optimum-20 minutes for BM smears).
- These are then suitable for subsequent staining by Romanowsky method or Perls' stain.

Indications for Bone Marrow study:

Haematologic

- Anemias, erythrocytosis, polycythaemia
- Leucopenia, and unexplained leucocytosis
- Presence of blasts, immature, or abnormal cells in the circulation.
- Thrombocytopenia, and thrombocytosis
- Assessment of iron status for differentiating iron deficiency anemia, anemia of chronic disease, and sideroblastic anaemia.

Systemic Disease

- Staging and management of solid malignant tumours arising elsewhere in the body, e.g. lymphoma, carcinoma, and sarcomas.
- Infections or fever of unknown origin, granulomas.
- Hereditary or acquired metabolic disorders
- Systemic mast cell disease

Histopathology specimens

Surgical pathologists have the unique opportunity of bridging the gap between commencement of disease process and its end stages. There is therefore a need to understand the clinicians' need and respond to them accordingly. Constant communication with the clinician at all levels is very important.

Histopathology depends heavily on the input of clinicians and surgeons. Microscopic examination is only a subjective evaluation which acquires full meaning only when the entire clinical details are known, including the surgical findings and type of surgery performed.

Few pointers for histopathology specimens:

- Crushing/squeezing of the tissue with forceps result in artifacts often rendering a biopsy impossible to interpret.
- Once the biopsy is obtained it should be placed ideally in 10% buffered formalin, otherwise the quality of the preparation will suffer. The specimen may be under fixed if fixation time is less than 30 minutes or may be over fixed (more than 24-48 hours).
- The temptation on part of surgeon or pathologist to fiddle with it, wash or scrape the surface should be resisted as it does not enhance or provide any information of diagnostic significance, but only create artifacts.
- Specimens other than small biopsies can be submitted in a fresh state immediately after resection, provided the facility is in close proximity. Avoid wrapping specimen in gauzes which tend to produce desiccation. However, if specimen is received in fresh state, it should be examined and determined whether further special procedures are required e.g. Cultures (bacterial, fungal, viral), electron microscopy, histochemical, immunohistochemical stains, imprint smears, cytogenetic or molecular pathology studies.
- It cannot be emphasized enough the importance of patient identification and labeling. The label should be on the container and NOT ON THE COVER/LID.

Anatomical pathology examinations are among the most reliable ways to establish:

- a diagnosis of the type of disease
- a prognosis on the likely progression of the disease
- a determination as to which are likely to be the most effective treatment regimens

Accuracy is crucial in this work, because it determines the nature of the disease and provides the doctor with the information necessary to make the most informed decision regarding the patient's therapeutic options. It is thus necessary that the best possible specimen be supplied to the laboratory for analysis.

Interlude

Warm and Moist

MAN: I'd like to buy some dog food.
Shopkeeper: Do you have a dog?
MAN: Yes.
Shopkeeper: Where is he?
MAN: He's at home.
Shopkeeper: I'm sorry; I can't sell this dog food to you unless I see the dog. Store policy.

The next day, the man returns.
MAN: I'd like to buy some cat food.
Shopkeeper: Do you have a cat?
MAN: Yes.
Shopkeeper: Well...where is she?
MAN: She's at home!
Shopkeeper: Sorry, I can't sell this cat food to you unless I see your cat.

The next day the man returns.
Shopkeeper: What's in the sack?
MAN: Put your hand inside.

Shopkeeper: Hmmm...It's warm and moist! What is it?

MAN: I would like to buy some toilet paper.

by:Munya P. Mangwendeza rtment, DML

Quality Assurance and Phlebotomy in Laboratory Medicine

The core business of laboratory medicine is to produce results that are clinically relevant and of use to the doctor in patient management.

Quality results can only be obtained from quality specimens. Thus a phlebotomist's job is simply to provide the laboratory with blood specimens that will produce valid results from the testing phase in the laboratory.

Specimens must be collected without bringing harm to the patient or the phlebotomist. The phlebotomy process should increase the chance of producing a valid result yet reducing the chance of potential harm to the patient and the phlebotomist.

Phlebotomy is a fully fledged medical profession but in the changing medical field, more and more non-phlebotomy medical personnel are collecting blood samples. This has resulted in more inappropriate samples being collected hence the resulting poor quality laboratory results.

This has in turn necessitated the need to disseminate information so that all those involved in the collection of blood samples are aware of the correct procedures that are to be followed in the quest to produce suitable specimens. Specimen suitability can be defined as the degree to which a correct specimen is obtained and specimen integrity maintained during those phases that are under the control of the phlebotomist.

Continuous quality improvement actions which focus on improving the processes as well as the individuals' performance should be implemented. The proper techniques have to be taught, quality assurance monitoring has to be started and the appropriate equipment has to be used if suitable specimens are to be supplied. An appropriate feedback mechanism regarding performance is key to reducing rejected specimens rates.

Phlebotomy processes are divided into 3 phases which are pre-collection, collection and post-collection phase. Pre-collection phase includes test ordering, patient preparation and patient education. Collection phase is the actual acquiring of the blood specimen and the post-collection phase looks at the activities that occur once the specimen has been collected.

Pre-analytical errors account for up to 75% of laboratory errors and encompass the time from when the test was ordered by the doctor until the sample is ready for analysis. Pre- analytical activities include:

Patient identification:

Essential so that the blood is collected from the right person. The person collecting the blood should have a verbal confirmation of the full name as well as the age before any samples are collected. A relative should identify any patient not able to speak or identify themselves.

Patient preparation.

The correct specimen should be collected form the individual as indicated by the doctor's request. For example if a fasting glucose sample has been ordered the patient has to be correctly advised to fast for at least 12 hours. Other samples have to be collected at specific times e.g. cortisol is a timed specimen. Some tests require that patients abstain from eating certain foods e.g. vanilla in case of VMA tests. Patients thus need to be adequately informed about the tests they are to go through and any restrictions that come with the tests.

Selection of the correct venepuncture site.

Sample suitability is also determined from the site from which the sample was collected. For examples specimens can not be collected from the arm with the infusion line, or the arm on the same side as a mastectomy. Careful and appropriate selection of the site is required to obtain a good quality specimen.

Venepuncture site preparation.

The venepuncture site should be adequately cleaned with an alcohol swab starting at the centre of the vein and moving outward in concentric circles. The area should be allowed to air dry before collecting the samples. This prevents haemolysis of the blood and the burning sensation a patient feels when being bled.

Tourniquet application time.

The tourniquet should be applied about 10cm above the venepuncture site and should only be applied for not longer than 1 minute.

Prolonged tourniquet application time can lead to an increase in various chemistry analytes including serum protein, potassium and lactic acid due to haemoconcentration of blood at the puncture site.

Venepuncture technique.

During phlebotomy, avoid probing to find the vein and achieve blood flow. Excessive probing can result in a poor quality specimen including one that is haemolysed.

Order of draw.

This is one of the most important factors affecting the quality of a specimen and should be strictly followed to ensure the suitability of the specimen.

The recommended order of draw is as follows:

- Blood cultures aerobic followed by anaerobic. If insufficient blood for both blood culture bottles, use aerobic bottle only.
- Light blue (sodium citrate tube) coagulation studies
- Red (plain), or red (gel separator tube) contains clot activator.
- Green and light green (heparin tubes)
- Lavender (EDTA) haematology and malaria testing.
- Gray (Na fluoride/oxalate) glucose testing
- Royal Blue last for trace elements contains dipotassium EDTA.

Tube mixing.

Any tube with additives should be inverted to mix the additive evenly with the blood. Be sure that tubes are not being shaken vigorously as this can cause haemolysis of the sample.

The directions for mixing are as follows:

- light blue sodium citrate tube 3 to 4 times
- red top tube 5 to 6 times
- green heparin tube 8 to 10 times
- EDTA purple top tube 8 to 10 times
- Grey fluoride/oxalate tube 8 -10 times
- Royal blue tube 8 to 10 times

Specimen volume.

All blood collection tubes need to be filled to the correct volume. Ensure correct amount of blood for the amount of additive in the tube. Do not use expired tubes.

Continued from page 3

Urine Samples and their Analysis

Tube handling and specimen processing.

Serum samples should be allowed to clot completely before they can be centrifuged. Red top tubes with no gel should be allowed to clot for 45-60 minutes and serum separator tubes to clot for 30 minutes. Certain chemistry analytes will require the tube of blood to be cooled after collection examples are ACTH, angiotensin converting enzyme, catecholamines. Ice packs can be used to achieve this. Others are photosensitive and should be protected from light in order to remain stable e.g. bilirubin, beta-carotene and erythrocyte protoporphyrin.

Safety:

safe disposal of sharps to avoid accidental injuries.

The majority of preanalytic errors in the laboratory are due to compromised sample quality. It is critical that personnel performing blood collections adhere to all recommendations by the tube manufacturer. Deviations from the manufacturer recommendations must be validated in individual laboratories.

Since most urgent critical decisions are based on STAT results, heparinised plasma samples can be used in place of serum so as to avoid the long clotting times required for serum samples. For serum samples always ensure adequate clotting time, proper mixing and those tubes are placed in an upright position to allow for complete clot formation.

References:

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3. Errors in Laboratory Medicine. Clinical Chemistry 48:5. 691-698 (2002). Pierangelo Bonini, Mario Plebani.

Interlude

Emergency Call

Dad's pager went off, summoning him to the hospital, where he is an anesthetist. As he raced toward the hospital, a patrol car sped up behind him - lights flashing. Dad hung his stethoscope out the window to signal that he was on an emergency call. Within seconds, came the police officer's hand in response, dangling a pair of handcuffs out the window

be obtained. Always confirm with the patient if they are on any medication or diet that could invalidate the results. Patients should always be fully educated about the specimen they are to collect before they are allowed to go ahead with the collection.

Whenever unexpected results are seen in urine measurements, they should be interpreted in the context of other analytes and clinical results that measure similar aspects of renal function.

As can be noted, urine is a valuable specimen for the screening, diagnosis and monitoring of disease and monitoring therapy. Minimize variables in order to obtain a suitable specimen.

Specimen handling is probably the most important step in obtaining a good urine specimen that can provide the most useful clinical information. It also equally important to carefully record any details that may be beneficial in the interpretation of the urine result. Results are only as good as the specimen and information provided.

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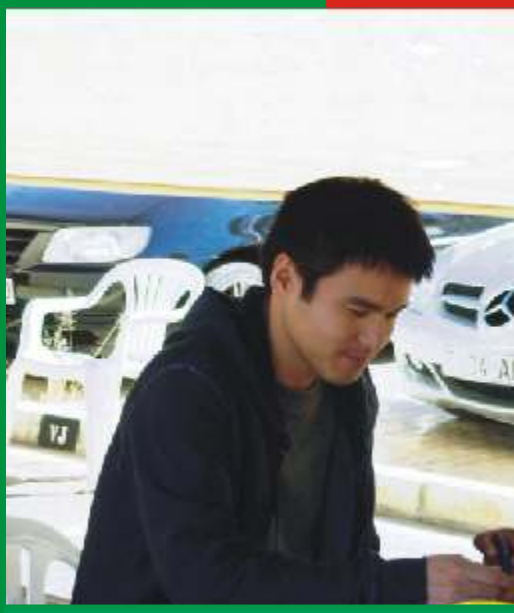
1. Manual of Clinical Microbiology 5th Edition. Barlows. Hausler, Isenberg and Shadomy
2. Microbiolgy International Edition. Prescott, Harley, Klein 4th Edition. McGraw Hill.
3. Tietz Textbook of Clinical Chemistry. Edited by Carl A. Burtis, Edward R. Ashward. 3rd Edition.

TEST	
Sodium	Affected by the diet. Increased by antibiotics, cough medicine and laxatives. Reduced by diuretics.
Potassium	Affected by diet. Increased by diuretics, salicyclates and glucocorticoids.
Chloride	Reduced by androgens, estrogens, methyldopa and cortisone. Increased by bicarbonates and corticosteroids.
Creatinine	Increased by gentamycin, heavy metal chemotherapeutic agents
Calcium	Increased by antacids, anti-convulsants and diuretics. Decreased by adrenocorticosteroids, oral contraception.
Total protein	Increased by exercise, dehydration, food, emotional stress, antibiotics and x-ray contrast media.
Micro albumin	Increased by dehydration and strenuous exercise
Glucose	Increased by lithium, oestrogen, diuretics, chloramphenicol
Uric acid	Increased by x-ray contrast media, anti inflammatory drugs and warfarin
Bilirubin	Decreased by exposure to light. Increased by oral contraception and steroids
Amylase	Increased by oral contraception, codeine, aspirin
5-HIAA	Increased by pineapples, avocados, bananas e.t.c. these should not be eaten less than 3 days prior to testing. Decreased by heparin, methyldopa, and tricyclic antidepressants
Porphyrins	Reduced by light. Values also affected by morphine and oral contraception.
Catecholamines and VMA	Increased by chocolate, cocoa, coffee, tea, bananas and vanilla. Strenuous exercise affects results. Increased by lithium and insulin. Decreased by salicyclates and imipramine.

Picture diagnosis

Dr. Kiran Bhagat, giving a speech on NIIT Wellness Day

Dr. Bhagat with World Hypertension Day sponsors



Desire at NIIT Wellness Day, testing Kag
the students

Director of ceremonies addressing people at the
Moshupa Wellness Day

Dr. Kalilani WHO representative givi
at World Hypertension Day

NIIT students show off their Wellness Certificates

Wellness assessment in Moshupa

giso, one of

People being tested at the World Hypertension Day

ing her speech

Xavier and Silas in Moshupa on Wellness Day

Importance of Detection of Acute HIV Infections by Means of HIV Combo Assays

Luis Filipe Pereira
Product Manager Infectious Diseases
Abbott GmbH & Co KG

HIV Incidence worldwide

Estimated Number of Adults & Children newly infected with HIV during 2005

Total: 4.9 million (4.3-6.6 million)

UNAIDS

Abbott's Retrovirus Leadership Milestones

For over three decades, Abbott Diagnostics has set the standard for retrovirus testing (1985 – First Commercial HIV test worldwide available)

This lays the ground work for continued innovation while providing the most comprehensive menu in the industry

Extensive Variation Among HIV

Like other viruses, HIV mutates at a very high rate creating different virus types and many subtypes

Virus Type	Subtypes
HIV-1 Group M	A, B, C, D, F, G, H, J (9 subtypes); Evidence of 8 subtypes*
HIV-1 Group O	A, B, C, D, E, F, G (7 subtypes)**
HIV-2	CRF_AE, BW, BF, AF, GM, BD, FB, AG, URF's and Mosaics
HIV-1 Recombinants	

It is very important to select an assay which detects all of these subtypes to ensure all infections are detected

Clinical Importance of HIV Ag/Ab Combo - Introduction

HIV Ag/Ab Combination Assay

What Makes a Modern HIV Assay?

1) Detect all known subtypes
2) Antigen detection
3) Antibody detection

Why?

Prevent further transmission and provide therapy early

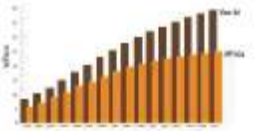
HIV Subtype Distribution in Africa (2003)

Subtype C is now the most prevalent Worldwide

The HIV/AIDS Epidemic is still growing

In 2005, 39.5 million people are currently living with HIV

"About half of the new infections are under 25y old"



Overall, rates of new HIV infections in Sub-Saharan Africa appear to have peaked in the late 1990s, and HIV prevalence seems to be levelling off, albeit at an extremely high level. Stabilization of HIV prevalence occurs when the rate of new HIV infections is equalled by the AIDS death rate among the infected population. This means that a country with a stable but very high prevalence is must be suffering a very high number of AIDS deaths each year. Although prevalence remains stable, the actual number of Africans living with HIV is rising due to general population growth.

www.avert.org

Global Trends

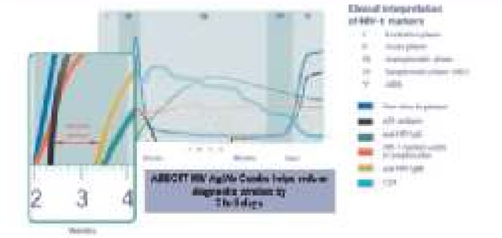
While HIV continues to spread, the industry continues to strive for earlier detection of HIV in order to…

- Prevent further spread
- Provide treatment earlier in an effort to prevent spread where possible, e.g in cases of mother to unborn
- Treat sooner to improve quality of life for those already infected

Earlier Detection Saves Lives

HIV Diagnostic Window

The goal of the latest generation of HIV assays is to reduce the diagnostic window



HIV Combo Experience in South London, UK

High prevalence of HIV in South London

- Local prevalence **600-700/100,000 population**
- 0.3% pregnant women HIV
- 3% of IVDU HIV +
- 3% of STD Clinic attendees HIV +

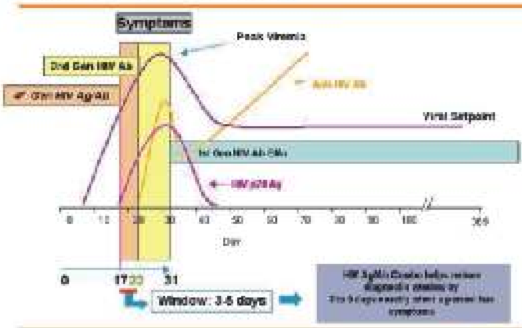
- Over a 24 month period 20 patients were identified as HIV Ab – but HIV Ag
- All patients AxSYM HIV Ag/Ab Combo reactive
- 12/20 reactive by bioMérieux Vironostika Uni-Form II Ag/Ab
- All patients were confirmed to have detectable p24 antigen in a reference lab

Reported by C. Y. William Tong MD, London, England

Over 300 new diagnoses per year

Missed seroconversion if combined Ag/Ab EIA were not used: 3% per year

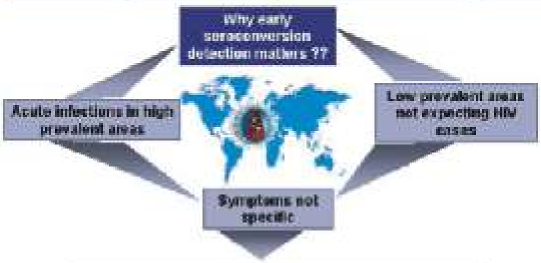
HIV Viremia During Early Infection – Diagnosis of Acute HIV Infection



Adding Antigen Screening for Antibody-negative Infections at HIV Testing

STUDY	INCREASED HIV Detection by
Pilcher, C NEJM 2005 (NC)	4%
Pilcher, C AIDS 2004 (Malawi)	5%
Stekler J. AIDS 2005 (Seattle)	8%
Klausner J. NEJM 2005 (SF)	11%
Patel, P JAIDS 2006 (LA)	7%
Priddy, F CROI 2005 (Atlanta)	5%
Stevens, W IAS 2005 (Johannesburg)	2%

Clinical Importance of HIV Ag/Ab Combination Assays



Prevent further transmission and provide therapy early

HIV Research & Assay Development Strategy

Goal: Ensure that ALL Abbott HIV assays detect all HIV subtypes and continually reduce the seroconversion window.

Impact of Detection of Acute HIV Infections

Acute HIV infection: the period during which viral load is the highest, the most infectious period, the high viral load can last 8 weeks

Transmissions: Acute HIV infection is responsible for the vast majority of sexual transmissions. In a recent study of linked HIV-discordant heterosexual monogamous couples, 43% of new HIV infections occurred during the first months of acute infection

Diagnosis: Acute HIV infection diagnosis often missed because many patients (~30%) may be asymptomatic or physicians often do not recognize the non-specific symptoms of acute HIV infection

- **May be responsible for: 14-50% of all transmission of HIV**
- **10-100 fold increased transmission risk x 3-6 months**

Abbott HIV Ag/Ab Assays

Murex HIV Ag/Ab Combination Assay

- **Launched (CE Mark) February 2001**

AxSYM® HIV Ag/Ab Combination Assay

- **Launched (CE Mark) May 2002**

PRISM® HIV Ag/Ab Combination Assay

- **Launched (CE Mark) September 2004**

ARCHITECT® HIV Ag/Ab Combination Assay

- **Launched (CE Mark) October 2004**

Dr. Debashish Gangopadhyay- Specialist Physician, Cardiac Clinic

Angiotensin- Converting Enzyme Inhibitors and Angiotensin Receptor Blockers in Patients with Congestive Heart Failure and Chronic Kidney Disease

Congestive heart Failure (CHF) is an increasingly prevalent condition globally. There is strong evidence indicating that the use of angiotensin-converting enzyme inhibitors (ACE-1) among patients hospitalized with CHF results in decreased mortality.

There are also data confirming angiotensin receptor blockers (ARB) can provide a similar reduction in mortality compared to ACE-I. The data from these trials from the basis for the American College of Cardiology/American Heart Association guidelines for the management of patients with chronic heart failure. Contemporary data suggest the use of ACE-I and ARB remains sub-optimal even in patients who have no contraindications to either therapy.

Renal dysfunction is an independent predictor of morbidity and mortality in the setting of CHF. The role of ACE-I and ARB in this group of patients is less well established for 2 major reasons. First, randomized clinical trials have typically excluded patients with severely impaired renal dysfunction.

Second, physicians have been reluctant to initiate either medication in patients with renal impairment because of the fear of precipitating acute renal failure or hyperkalaemia. Consequently, there is a knowledge gap regarding the potential benefits and risks of ACE-I in patients with CHF and associated chronic kidney disease (CKD).

Renal dysfunction as a strong predictor of both short-and intermediate-term mortality among patients hospitalized with CHF. A benefit of ACE-I and ARB on 30-day and 1-year mortality among patients with CHF, independent of the degree of severity of renal dysfunction, has been documented.

Inspite of the potential benefit of these medications, most studies find an inverse correlation between the degree of renal dysfunction and the use of both ACE-I and ARB. Interestingly, ACE-I and ARB did not appear to have an impact on mortality among dialysis patients.

The clinical significance of such findings stems from the high prevalence of renal dysfunction among patients with CHF. Some studies have documented a GFR of less than 30 mL/min in 16% of CHF patients and a GFR 30 to 59mL/min in 40% of patients.

The association of renal dysfunction and increased cardiovascular morbidity and mortality is well documented in the literature.

The existence of both conditions frequently reflects atherosclerotic burden, and so, it should not be surprising that patients with chronic renal sufficiency suffer increased mortality. In the cardiac health study, renal dysfunction was an independent predictor for the development of cardiovascular disease, CHF, and cardiovascular mortality.

Hillege et al, in a recent analysis of the CHARM trials, found impaired renal function to be a strong predictor of death, cardiovascular mortality, and rehospitalization for CHF.

Although multiple studies have addressed the poor prognosis of CHF patients with renal dysfunction, few investigators have addressed the impact of medical therapies among these patients.

Randomized clinical trials of both ACE-I have tended to exclude patients with impaired renal function, as defined by a serum Cr> 2.5 mg/dL. In a recent publication it was found that ACE-I had a similar benefit on mortality at 2.5 years whether the patients had a GFR> 60mL/min or a GFR <60mL/min.

The use of ACE-I among patients with severe renal insufficiency is clearly not an established practice. Bakris and Weir recently reviewed 12 randomized clinical trials of ACE-I in patients with baseline renal insufficiency (serum Cr > 1.4 mg/dL).

They found a strong association between acute increases in serum creatinine that stabilized within the first 2 months of ACE-I therapy and long-term preservation of renal function. The authors concluded ACE-I should only be withheld when the rise in creatinine exceeds 30% above baseline within the first 2 months of ACE-I initiation or hyperkalemia (serum potassium $\geq$ 5.6mmol/L) develops.

Philbin et a studied 1076 hospital survivors identified from a consecutive series of CHF inpatients and found angiotensin-converting enzyme inhibitors were associated with a clinical benefit among patients with a serum Cr $\leq$ 1.9 mg/dL. Among patients with a serum Cr $\geq$ 2.0 mg/dL, there was no impact on mortality, rehospitalization, or quality of life.

In a recently published randomized clinical trial of 224 non-diabetic patients with advanced renal insufficiency (serum Cr 3.1-5.0 mg/dL), Hou et al found benazepril reduced both the level or proteinuria and the rate of decline in renal function.

The absence of a significant mortality benefit of ACE-I and ARB among dialysis patients is an interesting observation. In one study there was no benefit of ACE-I or ARB among patients with a GFR < 15 mL/min who were on dialysis. However, they observed a 34% relative reduction in 30-day mortality and a 73% reduction in 1-year mortality among patients with a GFR < 15mL/min who were not on dialysis.

It should not be surprising that the CHF guidelines have been unable to achieve a consensus regarding the use of ACE-I/ARB in patients with severe renal dysfunction.

Most of the randomized clinical trials used serum Cr rather than estimated GFR and excluded patients with impaired renal function (serum Cr >2.0 mg/dL). In the studies that did permit a serum Cr as high as 3.0 mg/dL, few patients with severe renal dysfunction were actually enrolled. There is evidence from the CONSENSUS trial to support the use of ACE-I in patients with moderate renal insufficiency (GFR 30-60 mL/min).

In the recently published American College of Cardiology/American Heart Association guidelines, GFR is not used to stratify risk. The guidelines indicate ACE-I should be used with caution among patients with markedly increased levels of serum creatinine (> 3 mg/dL).

Recent data from the ADHERE registry indicates ACE-I and ARB are underused among patients with CHF and coexistent renal dysfunction. The collaborators identified renal insufficiency (Cr > 2.0

mg/dL) among 11798 (20.0%) of 58919 admissions of acute decompensated heart failure. Thirty-five percent of these patients were on an ACE-I before admission and 14% were on an ARB. In additional 9% of patients had an ACE-I added to their regimen at discharge, and 3% of patients had an ARB added to their regimen.

These data emphasize the importance of reevaluating patients with CHF to determine whether they are appropriate candidates for ACE-I and/or an ARB.

Several factors presumably explain the reduced use of ACE-I among CHF patients with pre-existing CKD. First, ACE-I have the potential to precipitate hyperkalemia ad increase the toxicity of other agents (i.e. digoxin) in the setting of CKD.

Second, a significant increase in serum creatinine (> 0.3 mg/dL) with the use of ACE-I is observed in 15% to 30% of CHF patients. This is of greatest concern among patients with renal artery stenosis in whom the institution of an ACE-I may reduce GFR by reducing the efferent arteriolar pressure.

Finally, patients with CHF secondary to systolic dysfunction frequently have reduced systolic BP, and physicians often struggle with balancing the benefits of multiagent therapy against the adverse effects associated with systemic hypertension.

In conclusion, chronic kidney disease is highly prevalent among CHF patients, and the severity of CKD is a strong predictor of short- and intermediate- term mortality. Although ACE-I and ARB are not widely used in this population, much data suggests their administration may be associated with an improved survival, both at 30 days and 1 year.

The initiation of these agents at low dose with careful monitoring of renal function and serum electrolytes should be considered in all patients with CHF, independent of renal function. The use of these agents in patients on hemodialysis clearly warrants further investigation.

Interlude

Marriage is the process of finding out what kind of man your wife would have preferred.

Minds are like Parachutes. They work best when open

by Dr.Ketaki Gadgil, Riverwalk Clinic, Gaborone.

Homoeopathy- An Alternative System of Medicine

Homoeopathy was founded by Samuel Hahnemann, a German doctor who first formulated the laws and principles of homoeopathy.

He and his colleagues took many substances in small quantities recording the set of different mental, emotional and physical symptoms produced by them which formed the basis of homoeopathic materia medica.

Homoeopathy is a very safe, effective and an increasingly popular form of natural medicine in many parts of the world. Homoeopathic medicines are made from substances from all kingdoms of nature-plant, animal and mineral. They all have unique mental, physical and emotional pictures which have been discovered over last two hundred years through trial and practice by many doctors.

'Homoeo' means like and 'Pathy' means disease. in other words a substance that can produce a set of symptoms in healthy individuals can cure the same symptoms if they appear in a diseased person. for example- while cutting an onion a person experiences watering of eyes and nose which are the same symptoms of a common cold. Thus the drug Allium Cepa' which is prepared from an onion is useful in homoeopathy in treating common cold with the symptoms of watering from eyes and nose.

When a correct homoeopathic medicine which matches the emotional and physical state of the person is administered it brings out an inner healing response on all the mental, emotional and physical levels. this mechanism is extremely powerful improving the function of the internal organs and stimulating the immune system. Homoeopathic medicines are truly curative rather than palliative in many acute as well as chronic conditions. They do not suppress the symptoms or the immune system of the individual as the orthodox medicines do.

In homoeopathy each case is unique and can be cured if it is treated individually. thus there is not only one medicine for pain relief but several and the correct drug will depend on the individual symptoms of the patient. For example-One person's pain for arthritis is better by rest and hot weather while the other person's pain is better by moving about .So each case requires a different medicine which 'matches' the individual features of the disease. Many sceptics say that homoeopathy only works if one has 'faith' in it, i.e. it is merely a sort of placebo.

The fact that it works dramatically on animals and infants dispels the myth. There is no need to have faith in it. simply try and see for yourself.

Homoeopathy is practised worldwide by an ever increasing number of medical doctors and homoeopaths. As a result of increase in publicity about the toxic effects of orthodox drugs many people are requesting safer alternatives from their doctors and pharmacists. Homoeopathic remedies work very rapidly in acute inflammations such as tonsillitis or obits or other infections provided the remedy is correctly chosen and given in the correct potency.

The chronic conditions that have persisted over a longer period will understandably take time to cure. The homoeopathic medicines in these conditions help in improving the constitutional and inherited weaknesses that are the basis of the disease symptoms. Suppressive drug which only palliate, but do not cure, may offer faster relief, but the degeneration will continue unabated.

Homoeopathy is completely safe for everyone, including pregnant mothers, infants and people with serious conditions. Homoeopathic medicines when given in the correct potency and dosages are extremely effective and have no unwanted side effects.

Homoeopathy treats almost any disease-both mental and physical. It cures many of the so called 'incurable diseases' including arthritis, migraines, asthma, eczema, hay fever, glandular fever and chronic fatigue syndrome.

It is very effective for children and women's problems and for mental or emotional disturbances- including premenstrual tension, insomnia, depression, anxiety attacks etc.

Developing A Positive Mental Attitude

It can be both interesting and surprising to note how people have completely different attitudes in life towards the same and towards different things. Some people have a positive outlook whilst others have a completely negative outlook in life.

What is Positive Thinking?

Positive Mental Attitude is being able to condition one's mind to influence one's attitude positively.

As we are all aware, life is full of challenges and some of the life's events are beyond human comprehension. What is interesting though is that challenges never leave one feeling the same. One either becomes bitter or better but the question of how it leaves one is entirely one's choice. We all have choices that we sometime never want to make use of.

If only we knew that our habitual thoughts and emotions largely determine our health and quality of our lives. For example, when a person is angry, his/her heart starts to beat twice as much, they start to sweat a lot, and the blood pressure starts to rise.

This shows that a physical condition can arise due to the quality of ones' thoughts. So when we talk of a happy person we simply mean somebody with happy thoughts, it is not the body that is happy but the thoughts though the physical radiance can be seen and the mental and emotional satisfaction can be felt. We all have the power within ourselves to either heal or make our selves more sick.

It is therefore important to monitor the kind of thoughts that enter our minds. We can all think of happy things that have happened to us but because we fail to monitor our thoughts, it is the negative thoughts that will dominate our minds and begin to haunt us until we become ill. In other words, we scare ourselves with our own thoughts and yes we often make ourselves ill with our own thoughts.

How do positive people behave? They:

- Accept their human short comings without self condemnation and defensiveness.
- Perceive reality more effectively and are comfortable with it. They are in touch with their feelings - they laugh, cry, offer a helping (without intimidation and not as a show off) and do not live in denial.
- Friendly towards everyone regardless of class, education, political beliefs or colour.
- They have a strong sense of humour but will not laugh at jokes that hurt or ridicule other people or are aimed at their inferiority.
- They are often self actualised and therefore have a quality of detachment and a need for privacy for them to be in touch with the higher self and sometime to dream.

Research made by Abraham Maslow one of the leading psychologists found that:

People with a positive mental attitude are self actualised and therefore utilise their creative potential for self fulfilment and often to serve humanity that's the cornerstone of their purpose and passion. They also do not look outside for approval; they know happiness comes from within. Before we reach that stage, we need often to have a conversation with ourselves and listen to our inner selves talking back to us.

We are often busy in life, running around chasing air and we lose the powerful opportunity of listening to our Intuition. Dr Wayne Dyer puts it beautifully that "if prayer is you talking to God, then intuition is God talking to you."

Just create time for yourself, have an intention of wanting to become a positive person, be honest with your self and the rest will follow.

How do you become positive?

- Self approval and self acceptance are the keys to positive change.
- Do you love yourself? Why? What do you to show it? Nurture and pamper yourself - do things that will make you feel good.
- What we believe about ourselves and life become true of us
- Change limiting beliefs of our parents/teachers that are stuck in our brains.
- Our thoughts are creative - Positive mind creates a positive vision
- Picture yourself as you wish to be affirm it (say it over and over again) then practice it.
- What we give out, we get it right back. If you go around hurting and cheating people, by the time it comes back to you, it will be triple fold.
- We can release the past and forgive everyone. Don't be a slave of what happened to you long ago.
- Love is the most powerful healing force it stimulates the immune system. Do you remember how you felt when you were in love? People who love themselves are naturally attractive.
- We are all worth loving - all of us . Just as we all have the right to breath, we don't have to earn it - it is our birth right because we exist.
- Last but not least be a spiritual being. Have a source of meaning and purpose of your existence. Wish other people well and empathise when they are hurting and be there for others in times of need.

Interlude

Contractor

Three contractors . . . one from India, another from Germany and the third from England are bidding to repair the State House fence. A senior State House official takes them to examine it.

The English contractor: takes out a tape measure and does some measuring, then works on some figures with a pencil. "Well," he says. "I figure the job will cost P900 . . . 5400 for materials, P400 for labor and P100 profit for me."
The German contractor: also does some measuring and figuring, and then says,"I can do this job for P700 . . . P300 for materials, P300 for my crew and P100 profit for me."

The Indian contractor doesn't measure or do any figuring, but leans over to the State House official and whispers: "P2,700."

The official incredulously says, "You didn't even measure like the other guys! How did you come up with such a high figure?"

"Easy," the Indian explains, "P1,000 for you, P1,000 for me and we hire the guy from Germany to do the work!"

Guess who got the contract.....!!

by Kiran Bhagat, Cardiac Clinic

Stroke Prevention in Atrial Fibrillation

Anticoagulation therapy is superior to antiplatelet therapy in preventing strokes in AF. Combining aspirin with anticoagulation therapy (combination therapy) in AF will increase the bleeding risk.

The only situation where combination therapy might be needed is in the setting of AF plus percutaneous coronary intervention and/or stents and/or acute coronary syndrome.

Introduction

This brief overview will address anticoagulant therapy, antiplatelet therapy and where combination therapy may or may not have a role for the prevention of stroke and thromboembolism in patients with atrial fibrillation (AF).

Anticoagulation therapy is superior to antiplatelet therapy in preventing strokes.

The provision of thromboprophylaxis for AF has many clinical trials to inform an appropriate management strategy. Generally, anticoagulation therapy reduces strokes by two-thirds compared to control, whilst aspirin reduces stroke by one-fifth [2].

Also, the superiority of antico-agulation therapy (with a 40% risk reduction) over aspirin as thrombo-prophylaxis in patients with nonvalvular AF is clear [2]. Mortality is not significantly decreased by the use of aspirin compared to placebo in patients with AF.

Aspirin has been used as an alternative to prescribing warfarin, despite the evidence that aspirin is poorly effective for stroke reduction in 'high risk' AF patients. The overall benefit for aspirin in stroke reduction is 22% with fairly wide confidence intervals, almost including unity, indicating no benefit [3].

Of note, aspirin was not beneficial in reducing recurrent strokes or severe strokes.

Warfarin is superior to aspirin for primary stroke prevention in the elderly.

In the recently presented Birmingham Atrial Fibrillation Treatment of the Aged (BAFTA), anticoagulation with warfarin was superior to aspirin for primary stroke prevention amongst elderly patients (age>75 years) with AF, in the primary care setting [4]. The BAFTA trial showed that warfarin was very effective thromboprophylaxis in the elderly, with no significant increased bleeding risk with age.

Thus, there is a very strong argument to use warfarin more often in elderly patients.

AF commonly coexists with vascular disease, the effect of antiplatelet therapy [or aspirin alone] in AF is probably the effect on vascular disease.

What is less well known is that the perceived overall stroke reduction benefit of aspirin (by approximately one-fifth) in AF is largely driven by one clinical trialthe first Stroke Prevention in Atrial Fibrillation (SPAF-I) Trial which had a degree of internal inconsistency in the aspirin effect within the study itself [5].

As AF commonly coexists with vascular disease, the effect of antiplatelet therapy [or aspirin alone] in AF is probably the effect on vascular disease, rather than on the stroke associated with AF per se indeed, antiplatelet therapy compared to control in 'high risk' vascular disease patients also reduces stroke by 22% [6].

Antiplatelet therapy is relatively inefficacious in high risk patients with AF.

The relative inefficacy of aspirin (and antiplatelet therapy) in high risk patients with AF is also clearly evident from other studies [7,8]. One recent clinical trial, the ACTIVE-W trial [8] of moderate to high risk patients with AF randomized patients to warfarin or combination antiplatelet therapy of aspirin/clopidogrel.

This trial was stopped early due to the inferiority of aspirin/clopidogrel combination therapy vs anticoagulant therapy for the composite endpoint of stroke, embolism, or vascular death, with no significant difference in bleeding rates [8].

Evidence for aspirin use is weak in "low risk" patients with AF.

Even in 'low risk' patients with AF, the evidence for aspirin use is pretty weak. In the Japanese AF Stroke Trial [9], which was performed in low risk patients with AF, there was no significant difference in primary endpoint rate between aspirin or placebo.

Combining aspirin with anticoagulation therapy (combination therapy) increases bleeding risk.

The data combining aspirin with anticoagulant therapy also shows little evidence for additive benefit for stroke prevention but a substantial increase in bleeding rate by using such combination therapy [10].

In a more recent analysis [11], there was again no significant additive effect of aspirin to anticoagulant therapy in stroke prevention or the reduction in vascular events (including death or myocardial infarction) but instead, combining aspirin with anticoagulants resulted in a substantial increase in bleeding risk.

Combination therapy in the setting of AF plus percutaneous coronary intervention and/or stents and/or acute coronary syndrome can be useful.

Perhaps the one situation where we might need combination therapy with anticoagulant plus antiplatelet therapy is in the setting of AF plus percutaneous coronary intervention and/or stents and/or acute coronary syndrome [12].

Here one has to balance the risk of stroke in AF versus the prevention of recurrent cardiac ischemic events in the acute coronary syndrome setting, against the bleeding risks associated with combination 'triple antithrombotic therapies'.

References available on request

Interlude

Three dreams of a man:
To be as handsome as his mother thinks.
To be as rich as his child believes.
To have as many women as his wife suspects...

Continued from Page 1

From My Keyboard

Clinical diagnosis alone should not be acceptable where laboratory services are available and it is disheartening to realize that this goes on in some areas and patient care is really compromised. Considering how clinical diagnosis alone may lead to grave medical errors, it is quite discouraging to realize that a startling number of results of very basic diagnostic tests such as malaria screen, TB microscopy and urine microscopy may be erroneous and unreliable leading to wrong diagnosis when they are included in the diagnosis algorithm.

Quality improvement processes have to be put in place in laboratories to ensure that laboratory medicine reclaim its appropriate place in patient management in Africa.

There is need to improve communication between the laboratory, doctors and other healthcare workers so as to change the opinion and attitudes about the value of diagnostic tests. This may lead to the much required improved appropriate utilization of laboratory services.

In this issue of the newsletter we have taken the extra step and given information on providing suitable specimens are for the laboratory in a bid to improve the quality of results issued by the laboratory.

Stay informed!!!

Munya. P. Mangwendeza
moonya@diagnofirm.co.bw

* Lockman S, Hone N, Kenyon TA, Mwasekaga M, Villauthapillai M, Creek T et al. Etiology of pulmonary infections in predominantly HIV-infected adults with suspected tuberculosis, Botswana , Int.J.Tuberc.Lung Dis. 2003;7(8):714-23.

Interlude

Husband and Wife

Husband and wife are like liver and kidney. Husband is liver and wife kidney.
If liver fails, kidney fails. If kidney fails, liver manages with other kidney.

JOKES CORNER

A Faithful Wife

A woman's husband had been slipping in and out of a coma for several months, yet she had stayed by his bedside every single day.

One day, when he came to, he motioned for her to come nearer. As she sat by him, he whispered, eyes full of tears, "You know what? You have been with me through all the bad times.

When I got fired, you were there to support me.

When my business failed, you were there.

When I got shot, you were by my side.

When we lost the house, you stayed right here.

When my health started failing, you were still by my side...

You know what?" "What dear?" she gently asked, smiling as her heart began to fill with warmth.

"I think you're bad luck."

Titanic was sinking.

An Englishman asked Van, "How far is land"?

Van: 2 KMs.

Englishman jumped into sea.

Englishman: Now, which direction?

Van: Downwards!

Wife vs. Husband

A couple drove down a country road for several miles, not saying a word. An earlier discussion had led to an argument and neither of them wanted to concede their position. As they passed a farm full of mules, goats, and pigs, the husband asked sarcastically, "

Relatives of yours?"

"Yep," the wife replied, "In-laws."

I think men who have pierced ears are better prepared for marriage. They have experience pain and bought jewelry.

Needing someone is like needing a parachute. If he/she isn't there the first time you need him/her, chances are you won't be needing him/her again.

The atheist and the lion

An atheist was taking a walk through the woods. "What majestic trees! What powerful rivers! What beautiful animals!" he said to himself.

As he was walking alongside the river he heard a rustling in the bushes behind him. He turned to look.

He saw a lion charge towards him.

He ran as fast as he could up the path. He looked over his shoulder and saw that the lion was closing in on him. He looked over his shoulder again, and the lion was even closer. He tripped and fell on the ground. He rolled over to pick himself up but saw the lion right on top of him, reaching for him with his left paw and raising his right paw to strike him.

At that instant the Atheist cried out:

"Oh my God!"

Time stopped.

The Lion froze.

The forest was silent.

As a bright light shone upon the man, a voice came out of the sky: "You deny my existence for all of these years, teach others I don't exist, and even credit creation to a cosmic accident. Do you expect me to help you out of this predicament?

Am I to count you as a believer?"

The atheist looked directly into the light, "It would be hypocritical of me to suddenly ask you to treat me as a Christian now, but perhaps could you make the LION a Christian?"

"Very well," said the voice.

The light went out.The sounds of the forest resumed.

And then the LION dropped his right paw, brought both paws together and bowed his head and spoke:

"Lord, bless this food, which I am about to receive from thy bounty through Christ our Lord, Amen."

Van's wife dies. He is calm, but his wife's lover is crying furiously...

Finally, Van consoles him: Don't worry buddy, I will marry again