The Utilization of Bone Markers in the Detection and Management of Osteoporosis

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Osteoporosis is a disease characterized by low bone mass and architectural deterioration of bone tissue, and increased bone fragility that leads to fractures of the hip, spine and wrist. All of the changes are related to the abnormalities of bone turnover. Biochemical markers of bone turnover, which include resorption and formation markers, reflect the degree of increase in overall bone turnover, and therefore are of value in evaluation of bone loss and fracture risk assessments. They are also very sensitive markers indicating the short-term response to osteoporotic therapy and improving patient compliance to a therapeutic regimen. Beckman Coulter Access Ostase uses chemiluminescent method to measure the amount of bone-specific alkaline phosphotase (BAP) in the blood. It provides physicians and patients with a timely means of assessing therapy compliance and efficacy, whereas the traditional bone mineral density measurements require a minimum of one to two years to detect changes in bone. In addition, the blood-based Ostase test provides convenience and reliability, with a simple blood sample collection rather than a more variable urine test.

Rapid Detection of Avian Flu H5 type

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Nucleic acid sequence-based amplification (NASBA) is a technique that allows the rapid amplification of specific regions of nucleic acid obtained from a diverse range of sources. It is especially suitable for amplifying RNA sequences. A NASBA technique has been developed that allows the detection of avian influenza A subtype H5 from allantoic fluid harvested from inoculated chick embryos. The amplified viral RNA is detected by electrochemiluminescence. The NASBA technique described here is specific, rapid and sensitive for identification of influenza A subtype H5 viruses. More importantly, it can be used to distinguish pathogenic and non-pathogenic strains of the H5 subtype.

New Modular Concept in Haematology

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Today, as the overall social environments are vigorously changing, clinical laboratories are facing to a new set of challenges for providing more valuable clinical information. There are requirements including assured quality of the test results, advanced accessibility to a clinical test database which can support both diagnosis and research as reference, as well as accommodating increasing test parameters and STAT test needs.

As a solution to these new challenges, Sysmex has moved to emphasize clinical laboratory systemization, under the concept of "Total Laboratory Automation (TLA)". TLA means a comprehensive laboratory system which integrates the entire process of laboratory work including data management. TLA is comprised of subsystems named islands for separate testing groups: hematology, blood coagulation, urinalysis and immunochemistry, and transportation lines which link the subsystems. TLA makes laboratory work cleaner and more comfortable through shortened testing time, improved efficiency and simplified sample handling. Toward the future, TLA will integrate with remote service, real time QC, and networking so as to provide an array of solutions to improve the quality and efficiency of medical care.

Serum Cystatin C as a New Marker for Noninvasive Estimation of Glomerular Filtration Rate and Early Renal Impairment

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Glomerular filtration rate (GFR) is routinely assessed by measuring the concentrations of endogenous serum markers such as blood urea nitrogen and serum creatinine. Although widely used, these endogenous markers are not ideal and do not perform optimally in certain clinical settings. A substantial degree of renal dysfunction may develop unnoticed as creatinine may remain in its normal range despite a major decline in GFR. The use of serum creatinine may also inaccurately estimate GFR due to changing protein intake, tubular secretion and variation in patients muscle mass. Serum cystatin C has been proposed as an alternative screening test in an attempt to improve the detection of reduced GFR. Cystatin C is a 13 kD endogenous cysteine proteinase inhibitor and is produced by all nucleated cells at a constant rate. Cystatin C is freely filtered by the glomerulus, and almost completely reabsorbed and catabolized in the tubules. Based on these characteristics, cystatin C seems well suited as a marker of GFR. Previous studies had shown superior results regarding the efficacy of cystatin C in comparison to creatinine as a screening test for GFR reduction. We, therefore, aim to review the potential utility of serum cystatin C measurement, especially in patient population where it may have an advantage over routinely assayed endogenous markers of GFR.