Pathologist-Clinician Collaboration and Patient Care

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In this era of personalized medicine Pathology plays a pivotal role and pathologists are at the forefront of establishing a correct diagnosis, on the basis of which further management of any disease is carried out. Infect the glorification of modern medicine and understanding of human body owes a lot to advances in pathology. A practicing physician or a surgeon is stranded without the help of a diagnostic pathology laboratory and guidelines from pathologist. Clinician suspects a disease and advises a battery of laboratory tests encompassing all the differential diagnosis and quite often, the confirmation requires a microscopic examination or more sophisticated tests involving molecular or genetic studies. It is believed that 70% of clinical decisions are based upon laboratory tests.

Collaboration between the pathologist and clinician has been found to be indispensable in improving the quality of patient care especially in, but not limited to, the areas of cancer management and care.[1] Knowledge about the sample collection, the right container used and proper documentation can minimize the pre-analytic errors. Laboratory request form is the first contact between the patient and laboratory and inadequately completed laboratory request forms or illegible clinical information provided limits pathologists advice to clinician and may contribute to medical errors. Majority of laboratory errors occur in pre-analytic phase of laboratory workflow and inadequately completed forms have been described as a contributory pre-analytic error.[2] Awareness about the limitations and interpretation of different test results is an essential component of patient care.

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Despite all precautionary measures "Zero lab error" is a Utopian target for any lab however only 15% of errors occur in Analytic phase. [3] Availability of relevant clinical history, imaging results, supportive laboratory results and procedural details contribute a lot towards establishing a correct cytological or histopathological diagnosis. In a study titled as "Clinicians are from Mars and pathologists are from Venus" it is highlighted that a communication gap exists between pathologists and surgeons and surgeons misunderstood pathologists report 30% of the time.[4] The practice of deliberately hiding the relevant clinical details from pathologist can lead to detrimental consequences for the patient.

Seeking advice of microbiologist is of immense value in selecting the best arsenal to combat infectious diseases and to minimize hospital acquired infections by utilizing guidelines of hospital infection control committee. Similarly, a hematologist can provide the best advice in conditions like DIC and other life threatening hematological disorders. When to transfuse and which component of blood is required for the particular patient falls under the domain of Blood Transfusion specialist or a hematologist and a coordinated effort is of utmost benefit for the patient.

To shorten the communication gap between the pathologist and clinician, various strategies have been suggested. Most convenient is to share the patient's clinical details on telephone or a junior doctor can visit the laboratory in a hospital setting and exchange clinical details. Interdepartmental meetings and clinico-pathological conferences are quite useful in this regard. Multidisciplinary teams involving a pathologist, radiologist and other clinical specialties also add quality to diagnosis and best patient management decisions.

References

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Microalbuminuria: A Urinary Biomarker of Diabetic Kidney Disease

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Diabetes Mellitus is a chronic metabolic disorder characterized by persistent hyperglycemia and disorders of carbohydrate, protein and lipid metabolism.[1] It is expected that by the year 2030, about 552 million people globally will be affected from diabetes mellitus.[2] If not well controlled, diabetes mellitus leads to both microvascular and macrovascular complications.[2] Diabetic mellitus is the most common cause of diabetes nephropathy that has a momentous impact on quality of life and survival of the patient.[1] It is estimated that about 40 % of type I and type II diabetes mellitus develop diabetic kidney disease.[2] If not timely diagnosed and properly treated, diabetic nephropathy eventually leads to End stage renal disease that requires dialysis or renal transplantation. Multiple serum and urinary biomarkers are used to diagnose diabetic nephropathy before it is clinically evident.[2] Urinary microalbumin has been used as a clinical biomarker of diabetic kidney disease since 1982.[4] It is used to screen both type I and type II diabetes mellitus.[5] Microalbuminuria results when albumin crosses glomerular filtration barrier due to ultrastructural changes in endothelial glycocalyx.[6] Microalbuminuria also represents a marker of systemic endothelial dysfunction with increased risk of cardiovascular and cerebral insults in patients with diabetes mellitus.[7]

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In addition to glomerular injury, newer biomarkers of tubular, vascular, inflammation, podocytes and oxidative stress have been verified in some patients that detect diabetic nephropathy much earlier than microalbuminuria.[3] Usefulness of these biomarkers is still debatable in research due to limited studies performed and requires further validation.[3] Microalbuminuria even disputed as biomarker of early diabetic nephropathy, is still considered as an important screening test to detect glomerular and tubular injury in diabetic population.[3] American Diabetes Association guidelines recommend initial assessment of urinary albumin excretion in type I diabetes mellitus who have had diabetes for at least five years and in all patients with type II diabetes mellitus at the time of presentation and during pregnancy.[8] All diabetic patients with negative screening test for microalbuminuria should be assessed for kidney functions on annual basis.[9]

Microalbuminuria (although a misnomer term) is detection of small quantity of albumin (and not small-size albumin) in the urine i.e. 30-300 mg/24 hours or 20 to 200 µg/min in the absence of clinical proteinurea as measured by standard analytical methods.[7] More appropriate term for microalbuminuria is paucialbuminuria or albumin excretion rate.[10]

Normal urinary albumin excretion is less than 30 mg/24 hours (20ug/min). This small amount is not detectable by