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Mini Review

The Role of Laboratory Procedures in The Quality of Hospital Care

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Introduction

Each diagnostic investigation (biochemical and laboratory procedures) have a set of characteristics that provide the knowledge to make decisions about the patient status (with or without dieses under investigation). Characteristics of biochemical and laboratory procedures provide physician with knowledge about: the sensitivity of biochemical and laboratory procedures determines the probability that result of the lab investigations will be abnormal (no healthy patient), And, specificity of biochemical and laboratory procedures determines, the probability that the result will be normal (the patient without dieses) [1]. Specialist doctor should depend metrics of biochemical and laboratory procedures characteristics such as sensitivity and specificity to determine the quality of a laboratory procedures for a specific disorder. The sensitivity of diagnostic laboratory test is the probability that a patient with disorder has a positive results of diagnostic laboratory test. If all patients with a specific disorder have a positive test (i.e., healthy patient have negative results), the test sensitivity is 100%.

Generally, a test with high sensitivity is assistant to negates a diagnosis because a highly sensitive test will makes few results that are falsely negative. The specificity of diagnostic laboratory test is the probability that a patient without disorder has a negative test. If all patients who do not have a specific disorder have negative tests (i.e., the patient with dieses have positive tests), the test specificity is 100%. A test with high specificity is assistant to prove a diagnosis, because a highly specific test will have few results that are falsely positive. [2]. Positive predictive value (PPV) is a metric of existence of the disease in all population with positive tests. It is the likelihood that a person is no healthy, given a positive result. Positive predictive value (PPV) is gathering the disease prevalence with test sensitivity and specificity. Negative predictive value (NPV) is a metric of the repeating of the absence of the disease in all population with negative tests. It is the likelihood that, given a negative result, the patient is healthy [2,3]. High quality diagnostic laboratory investigation is one for which there is no overlap in the range of results among healthy or no healthy patients.

Few diagnostic laboratory investigations are classified as high-quality investigation. Usually there is an overlap of results among healthy or no healthy patients. Each point along the distribution of results that overlap defines a set of operational features for the laboratory investigation. As the point -that defines an unnatural result- is moved in the direction of no healthy patients, the sensitivity minimizes. As it is moved in the direction of healthy patients, the reverse is true. Some diagnostic laboratory investigations may be used both to exclude or to confirm a disease by altering the criteria for a positive test according to the intent of the diagnostic laboratory investigation [4,5]. Knowledge of diagnostic laboratory investigations specifications is important in determining which investigation to order of a given intent. The providing of evidence of diseasepresence needs a diagnostic laboratory investigation whose specificity is high. When two or more diagnostic laboratory investigations are available for this intent, the one with the highest specificity is usually prioritized. When a diagnostic laboratory investigation is selected for inspection or to excluding a potential diagnosis it must be sensitive.

When two or more such diagnostic laboratory investigations are available, that with the highest sensitivity is usually prioritized. Multiple diagnostic laboratory investigations are most useful when: [1] (all are normal, thus indicating to provide the evidence of disease absence; and [2]) when all are abnormal, thus the purpose to provide the evidence of disease presence. Multiple tests are least helpful when one is positive, and the others are normal. If two or more diagnostic laboratory investigations are highly sensitive

and the basic intent of the diagnostic laboratory investigations is to exclude a disease, the maximizing of sensitivity acquired by selecting more than one laboratory investigations may be replaced by the increase in false-positive results [6-8] diagnostic laboratory investigations can be utilized for screening purposes to recognize "at risk" persons who may be get sick with disease that can be protected or diminished by early discovery and treatment. utilizing of laboratory investigations for screening purposes should include selection of a highly sensitive investigation. The problem with utilizing of laboratory investigations for screening purpose, though, is the size of false-positive results it provides.

In order to treat this case, many efforts have been provided to adopt of evidence based or consensus guidelines for ordering of appropriate laboratory investigations for early detection [9,10]. Appropriate ordering of diagnostic laboratory investigations-as an ongoing process of achieving the ideal utilizing of Available laboratory services - could be defined as selecting the right laboratory investigations and reading them correctly to accomplish the diagnosis and assessment of the patient illness. Over utilization is recorded when the diagnostic laboratory investigations that were selected during a patient illness that do not supply information about the patient illness. Under-utilization is recorded when the diagnostic laboratory investigations that do supply serious information for the diagnosis and assessment of patient illness that were not selected. Finally, the appropriate utilizing of diagnostic laboratory investigations would be carried out when the doctors prescribe the right investigations, at the right time, in the right request. [11-13] Practically, the diagnostic laboratory investigations may be over utilized, underutilized, or maluitilized. Each could Lead to an maximizing the costs. The problem of ordering of diagnostic laboratory investigations is more than the problem of costs. Actually, it is the ideal utilizing of available laboratory services to improve the healthcare that provided to patient [14]. Promoting the appropriateness of ordering of diagnostic laboratory investigations and minimize the number of investigations have been recorded b as fundamental aspect of quality improvement [15]. Appropriateness performs a fundamental function in quality improvement projects. ultimately, Appropriateness in ordering of diagnostic laboratory investigations can be evaluated, and promoted, through the all steps of selecting and performing of investigations. This begins with chosen of diagnostic laboratory investigation, performs through beneficial pre-, intra- and post-analytical process, and concludes by ensuring the appropriate employing of results for patient care [16,17].

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