

Importance of the Laboratory In Diagnosing Diseases



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While watching a medical series on TV, I found it interesting when the physician in charge thought of two medical diagnoses based on the symptoms of his patient. He then asked the resident doctor to ask an ANA and a CBC + smear “to confirm” one of the two illnesses as the cause. Later on the residents later came back with “negative” for ANA and “normal” for the CBC+ smear. The physician in charge objected, saying it is wrong, and asked for a re-test. The chief resident said that the tests were done twice. So, the physician’s next move was to trust the lab, find other explanations that fit the symptoms, dig deeper into the Patient life style and history, and finally make a new list of Differential Diagnoses (DDX) for the illness.

When I was in medical school, I was taught that in order to reach a diagnosis we needed to have a proper patient history and background, medication profile, and a very thorough physical examination. They constitute more than 50% of the path towards a good DDX. The rest depended on requesting the proper laboratory tests, as well as, radiology and pathology, to confirm and reach a final diagnosis. Sometimes, doing additional tests, or even looking at how a certain therapy was working would give the doctor clues to determine a final diagnosis.

On the other hand, during a taxi ride, the driver knew what I do for a living and commented saying that labs are “the whole story in medicine’s decision-making task”. According to him who is a non-medical individual, labs

found out what is wrong with a patient, period! Thus, labs guide doctors in the right direction. But what if the doctor was looking for allergies based on a high eosinophil count, while the real problem was a parasitic infestation in the GI? If a stool exam was not requested, then the lab wouldn’t search for parasites, and the real problem would remain unknown. Therefore, the direction a lab is given by the physician via the tests requested is very important in the final picture.

As a laboratory, our job is to ensure that we perform our tests based on standards set by international organizations. Our data should be trustworthy. **Our methods used should be well known, with good background knowledge of each test’s shortcomings, sensitivity and specificity.** For example, an elevated CPK can be due to cardiac ischemia, but can also be due to a muscle tear (shortcoming); doing an HIV PCR is better 5 days after an accidental needle prick compared to an HIV antibody ELISA method. An elevated CA-125 or PSA is not a definitive diagnosis for a tumor, whereas a positive pathology result is. A positive PPD doesn’t mean a definite presence of tuberculosis, but positive sputum PCR for TB is.



Laboratories must follow standard guidelines. These include both pre-analytical rules (which tube to use, what temperature to test at, etc.) and analytical rules (calibration, controls and using whole blood or serum or plasma for accurate results). Furthermore, there are international guidelines and standards that can be followed, such as CAP and ISO 9001:2008 (quality management systems) and ISO 17025 (laboratory accreditation). These help the laboratory ensure many things such as: reproducibility of a result, continuous medical education for staff, customer care, identification and prevention of problems.

Once a laboratory sets its standards, it must then follow the physician’s requested tests and complete them in a timely manner. Certain tests are prioritized above others in urgency. Panic results, such as positive cardiac enzymes or low platelets, should be communicated

with the doctor involved. Doctors must also be informed that certain specific tests may not be performed if they are not specifically asked for. For example, most labs in Lebanon do not search routinely for the *Vibrio cholera* bacterium in a stool culture, if the physician didn’t ask for it specifically. When trying to diagnose a TB infection, asking for a culture can take up to a month for an answer, while a PCR can take hours.

In conclusion, I believe that along with the departments of radiology and pathology, the laboratory constitutes an important aspect of diagnostic medicine. The result(s) given by a laboratory can confirm a doctor’s diagnosis or delete it from his differential list of illnesses. Therefore, a quick and accurate result by the lab will always aid the doctor in reaching his goal in providing the best medical care for the patient involved.

Infos

Sommeil: On n’a pas Forcément Peur dans nos Cauchemars.

Malgré sa mauvaise réputation, la peur n’est pas le sentiment qui prévaut dans les cauchemars et les mauvais rêves. Ce sont les agressions physiques et les interactions personnelles qui sont les plus fréquents dans nos mauvais songes. Selon une nouvelle étude qui vient d’être publiée dans la revue professionnelle sur le sommeil: Sleep, **la peur n’est pas l’objet principal de nos cauchemars et de nos mauvais rêves.** Pour analyser ces derniers, les chercheurs de l’Université de Montréal ont demandé à 331 personnes (majoritairement des femmes) de noter dans une sorte de journal de bord l’objet principal de leurs mauvais rêves, et ce, pendant 15 jours à 5 semaines. On leur demandait simplement de noter leurs impressions juste après leur réveil, en quelques mots.

Ils se sont alors aperçus que la peur est le principal sentiment ressenti dans un cauchemar sur trois seulement. Plus de la moitié des mauvais rêves concerne des agressions physiques ou des interactions personnelles (conflits, disputes...). « Ils sont suivis par des cauchemars reflétant un sentiment d’échec ou d’impuissance, des

préoccupations liées à la santé ou la mort ou encore des craintes et des inquiétudes» ont constatées les chercheurs canadiens. En revanche, les mauvais rêves des hommes sont plus susceptibles d’inclure des catastrophes ou des guerres.

On fait tous des cauchemars ? Nous ne sommes pas tous égaux devant les cauchemars: les personnes sujettes à la dépression, la schizophrénie ou qui essaient d’arrêter l’alcool, seraient plus à risque.

Les personnes “créatives”, elles aussi, feraient plus de cauchemars car elles ont plus accès à leur imaginaire et leurs émotions.

Les chercheurs ont également noté que certains cauchemars, notamment ceux qui donnaient une sensation d’enfermement, d’étouffement ou de paralysie, restaient plus longtemps présents dans la mémoire. Et que c’est ceux-là dont le groupe témoin se souvenait le plus lors des interrogatoires des chercheurs, longtemps après avoir rédigé leur journal de bord.