

Lung auscultation – a useless ritual?

Introduced nearly 200 years ago [1], auscultation and percussion of the chest are considered essential in the physical examination and are taught to every medical student. However, of all the diagnoses that ever will be made, over half are made during the taking of the patient's history. Even when patients are referred to a tertiary care centre after workups elsewhere, attention should appropriately be refocused on the clinical examination: the patient's history and the physical examination. But in our times of highly sophisticated diagnostic technology essential clinical skills, particularly the practice of chest auscultation, a time-honoured art and the very symbol of physical diagnosis have eroded. There are strong arguments against devaluating the examination and proceeding directly to definitive investigations, especially in teaching institutions, where most trainees need to be prepared for careers in primary care. However, despite its long tradition [2, 3] the accuracy and precision of a symptom or sign have infrequently been assessed rigorously and further studies on the value of the clinical examination are needed [4].

The starting point for all clinical decisions is pre-test probability, ie the probability of disease (ie prevalence) before application of the results of further examination. Estimates of disease prevalence, given a particular clinical setting, are available for many clinical problems, although the physician must adjust these estimates with information from his or her practice or institution. Most clinical data come directly from patients via narration of their own history. The physical examination follows the history taking and is often directed toward the problem at hand. The individual pieces of this clinical information can be considered to have the same characteristics as diagnostic tests. If a physical sign characteristic of a suspected diagnosis is present, that diagnosis becomes more likely; if the finding is absent, the suspected diagnosis becomes less likely. How much these positive and negative results modify probability, however, is distinct for each physical sign. The accuracy of a symptom or sign can be described in terms of sensitivity (the proportion of patients with the target disorder who have the symptom or sign), specificity (the proportion of patients without the target disorder who do not have the symptom or sign), or likelihood ratio (LR). The LR expresses the probability that a given finding will occur in a patient with the target disorder. LRs greater than 10 virtually rule in a diagnosis, LRs of less than 0.1 virtually rule it out, and LRs of around 1 mean that no useful information has been obtained from the clinical finding [5]. Disagreement about physical signs contributes to the growing sense among physicians, that physical

examination is less scientific than more technological tests, such as imaging and laboratory testing. Precision is a key measure of clinical skill and describes the degree of agreement between different observers performing and interpreting a test. To address this problem, most clinical studies express inter-observer agreement using the kappa (κ)-statistic, which has values between 0 and 1. A κ of 0 indicates that observer agreement is the same as that expected by chance, and a κ value of 1 indicates perfect agreement. For detecting pneumonia in patients with cough and fever diminished breath sounds on auscultation had a positive LR of 2.3 and a negative LR of 0.8, and crackles had a positive LR of 2.0 and a negative LR of 0.8 [6]. In a study on inter-observer agreement of chest signs the κ values for bronchial breathing were 0.32, for crackles 0.41 and for wheezes 0.51 [7]. These results emphasise the limitation of such isolated information. However, in the usual stepwise diagnostic process clinicians are used not to rely on auscultation alone, but to combine findings. This is particularly important for physical signs with positive LRs around 2.0 or negative LRs around 0.5 that by themselves change probability little, but when combined change probability to a bigger extent. The accuracy to predict the presence of pneumonia has been studied in patients presenting to emergency departments with complaints of fever or respiratory symptoms [6]. The probability of having pneumonia increased with an increasing number of predictors, derived by multiple regression analysis, and auscultatory findings were two of five. Hence, despite the limitation of physical examination [8], we should not neglect other benefits of such a procedure, as properly described in a textbook on lung diseases [9]:

“The stethoscope is largely a decorative instrument insofar as its value in diagnosis of pulmonary diseases is concerned. Nevertheless, it occupies an important place in the art of medicine. Apprehensive patients with functional complaints are often relieved as soon as they feel the chest piece on their pectoral muscles.”

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