Rational use of Laboratory Tests

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Abstract

Laboratory tests are used for many purposes such as disease detection, diagnosis and monitoring. The use of rational laboratory tests is aimed at ordering tests that may be beneficial in patient management and that will not harm them. Overutilization of tests may lead to unnecessary use of health services and interventions of questionable benefit, while underutilization of appropriate tests may lead to adverse health outcomes and increased future use of health care resources. The physicians have a responsibility to protect their patients from being harmed by interventions and treatments due to unnecessary and excessive tests.

Keywords: Inappropriate ordering of tests; Primary care; Rational use of laboratory tests

Introduction

Laboratory testing such as blood tests and radiography are important tools for the making correct diagnoses, identifying the presence, absence or characteristics of a condition of interest in a patient, and aiming to develop a plan to the appropriate treatment. Due to the advances in laboratory technology and tests and the increasing level of medical knowledge, the number of tests required is gradually increasing. With the increase in the number of tests that is ordered, both the side effects caused by the tests and the side effects brought by the treatments initiated after the false positive results increase the risk of injury to the patients during the screening and diagnosis processes. Additionally, once an abnormal test result is found, clinicians may order further investigations, not realising that on average 5% of test results are outside their reference ranges and a cascade of testing may result [1,2].

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In the context of quaternary prevention, family physicians have a responsibility to protect their patients from unnecessary and excessive tests, interventions and treatments. According to the definition of WONCA, quaternary prevention means identifying patients who are prescribed excessive medication, protecting them from new medical interventions and offering them ethically acceptable interventions [3]. Rational laboratory use is defined as effective and correct laboratory use by providing the most appropriate test selection with the right clinical approach in line with the evidence based data and considering the cost and patient safety [4]. Nowadays, in connection with the advances in technology, the number of laboratory tests that we can use in diagnostic research is increasing, but this increase also causes the patients to be asked for more tests than necessary.

Irrational use of laboratory tests has been demonstrated in some studies. In a study conducted in a tertiary hospital in India; the laboratory tests requested from 90 patients selected by random sampling from patients who were hospitalized within 3 months were examined. In these patients, 42 different tests were requested, the total number of which was 2653. It was thought that 70.1% of these laboratory tests did not contribute to the diagnosis and treatment management of the patients. It was determined that 20% of the selected patients had routine blood tests three or more times [5]. In 2013, in a study conducted by Levick et al., in USA, a computer-assisted system was used to remind the results of previous test if the same test was ordered from patients who were previously ordered for B Natriuretic Peptide (BNP). With this practice, it was observed that BNP orders decreased by 21% and this led to an annual decrease of 92,000 dollars from hospital expenses [6].

In a study conducted by Vegting et al., in the Department of Internal Medicine at Vrije University in Amsterdam, the effect of such as increasing inspections by senior doctors, removing tests panels, distributing the information cards about cost of tests to doctors, weekly meetings on ordered tests, facilitating access to ministry protocols interventions on health authority has been investigated. During the year in which the interventions were practised, the laboratory test costs of the internal medicine department decreased by 21% and the following year, the test costs of the entire hospital were reduced by 14% [7]. In a study conducted by Baricchi et al., in Italy, all general practitioners in the region were trained about some tests. After course, it was asked to write the possible diagnosis in their test request forms when they ordered test. It was observed that the total number of test ordered by physicians trained the following year decreased by 5%, and the total number of test ordered by the control group increased by 1% [8].

In 2012, The Choosing Wisely® (www.choosingwisely.org) campaign was created as an initiative of the American Board of Internal Medicine (ABIM) Foundation (www.abimfoundation.org) to improve health care quality. The goal of the campaign is to promote conversations between clinicians and patients by helping patients choose care that is: supported by evidence, not duplicative of other tests or procedures already received, free from harm, truly necessary. It calls upon leading medical specialty societies and other organizations to
identify tests or procedures commonly used in their field whose necessity should be questioned and discussed with patients. More than 70 specialty societies have identified commonly used tests or procedures within their specialties that are possibly overused.

In early 2014, the ABIM Foundation, with funding from the Robert Wood Johnson Foundation, commissioned a survey conducted by PerryUndem Research/Communication to explore physician attitudes regarding the overuse of medical services in the United States. The research found that nearly three out of four U.S. physicians say the frequency with which doctors order unnecessary medical tests and procedures is a serious problem for the healthcare system. It is recognized that rational laboratory use will significantly reduce healthcare costs. In order to reduce the cost of health care, some measures have been tried to reduce irrational laboratory use. These include measures such as “prohibiting the ordering of certain tests for certain specialties,” not reimbursing for unnecessary tests, preventing repeated tests, using computer-based reminders and decision support systems” [9].

Unfortunately, when guidelines on selective and rational ordering of laboratory tests are introduced, numerous motives for ignoring evidence-based recommendations, such as fear of litigation, come into play in daily practice and are difficult to influence. Another reason for physicians’ orders for excessive testing may be the concern of failing to manage chronic diseases. Patients may be have a chronic disease, and question the skills of their doctor when it cannot be cured, or have recurrent vague or unexplained complaints which doctors may be tempted to overinvestigate. In this condition, it is recommended to explain to patients that not all tests give reliable results. Physicians can use shared decision-making and Clinical decision support intervention to reduce inappropriate tests in primary care [10,11].

Elderly people constitute a significant number of people cared for by family physicians. Elderly people are the group most affected by the results of inappropriate interventions caused by unnecessary test use. Therefore, rational laboratory test use is important in the care of elderly people. Overdiagnosis resulting from inappropriate test may cause negative results in elderly people. For example, overdiagnosis of prostate cancer due to prostate-specific antigen screening of the general population is responsible for the annual incidence to mortality ratio for prostate cancer of approximately 6 to 1 [12].

Conclusion

Clinical laboratory testing is integral to the delivery of health care, as a significant majority of medical decisions are influenced by the results of laboratory tests. However, it is accepted that approximately 20% to 50% of laboratory testing may not be appropriate [11]. Overutilization of tests may lead to unnecessary use of health services and interventions whose benefit can be questioned, while underutilization of appropriate tests may lead to adverse health outcomes and increased future use of health care resources. There is a need to balance the desirable and undesirable consequences of tests results for the patients in order to laboratory tests.

References
