COMMENT

Misuse of diagnostic tests

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The late Arthur C Clarke, well-known science-fiction writer, said: "Any sufficiently advanced technology is indistinguishable from magic." Indeed, there would be no arguing about the magical abilities of the tools at our disposal today. There appears to be no slowing down, either, of the pace at which new technology (diagnostic and therapeutic) is being introduced into medical practice.

We glibly assume that new innovations are beneficial, and rarely pause to reflect on the ethics of technology usage in medical practice. To quote Pierre Gallois: "If you put tomfoolery into a computer, nothing comes out of it but tomfoolery. But this tomfoolery, having passed through a very expensive machine, is somehow ennobled and no one dares criticise it." Technology, by itself, is value free; history is replete with examples: the power of the atom being available for peaceful purposes as well as the production of large-scale destruction; the use of the Internet for sharing and disseminating knowledge on a scale that was never earlier possible, while at the same time being used for immoral and illegal purposes. These are some of the more dramatic examples. The ethics of technology usage involve examination of issues that are not always apparent.

About a quarter of the expenses met in the management of a medical episode would go under the head of diagnostic tests. Given the flood of expensive newly available choices in diagnostic medicine, rising health care costs are, therefore, easily blamed on tests themselves. Of the four major components of health care costs – drugs and supplies, tests, hospital charges, and professional charges – the first two are discrete commodities that, unlike the other two services, can be accurately costed and priced by standard business accounting procedures. This is reflected by the observation that the price of standard tests will vary negligibly between facilities in a given geographical area, although the overall hospital bill may show significant variability for identical transactions. A panel of six commonly ordered tests – haemogram, blood sugar, urine analysis, BUN and creatinine, resting ECG and chest X-ray – will cost around Rs 750 in most urban Indian cities. Market forces in an open economy permit very little room in terms of the amount that can be charged for easily available diagnostic tests. Practicalities of the marketplace mandate a modicum of restraint with respect to the limits on charges.

In business, volumes are achieved by two strategies: increasing market share and increasing utilisation. In medical practice market share is hard to enlarge unless the organisation has a widely known brand image. To counter this restriction, the only business model left for those who invest in present-day technology is one of pushing for more utilisation; profits depend on volumes and very little else.

The ethics of diagnostic test usage revolve, therefore, around appropriateness, and could be discussed under the following four poor practices:

1. Too many tests: The "panel" approach to diagnostic testing is all too common. Conveniently labelled, they prevent doctors from thinking things through and selecting only the appropriate tests: a haemoglobin and haematocrit rather than a CBC, alkaline phosphatase alone when screening for liver metastasis rather than the entire LFT, and so on. The offered reason behind the panel approach is that of being thorough; in reality it is wasteful and generates unnecessary expenses without any benefit to the patient. Needless to say, the patient pays.

Panel testing, in addition, amplifies the risk of false positive results and the consequences thereof. A common rarely examined example is the practice of ordering treadmill (stress) ECGs as part of routine health screening in young, asymptomatic individuals. When used in a shotgun fashion, false positives are common. The situation can be laid to rest only by obtaining a coronary angiogram: neither a cheap nor innocuous procedure.

It is worth pointing out that close to 95 per cent of all tests that are ordered are reported as normal. While it is true that a normal test provides reassurance, certainly, the number of normal tests reported is too large to be an accurate reflection of our diagnostic needs.

2. Tests carried out too often: Tests are repeated to monitor progression of disease and response to treatment. Practice guidelines and consensus-based recommendations prescribe optimal frequencies for repeating tests; these guidelines are more often breached than adhered to. The evidence base narrows down recommendations in time. As an example, the recommended follow-up testing for a woman with early stage breast cancer who is clinically disease-free after the primary treatment has been: complete physical examination, a chest X-ray, an abdominal scan, a bone scan and a mammogram of the opposite breast (and the conserved breast if a breast-conserving option was used). There is mounting evidence

that this standard practice has very little value in terms of pre-symptomatic detection and intervention. The only test of value is the screening mammogram. Yet it is rare to see an oncologist follow this recommendation.

3. Unproven indications: Extending the expectations of a test beyond that which is proven and established is unscientific. The previously quoted example of a stress ECG in low-risk, asymptomatic populations is a good example. Routine abdominal scans offered as part of health screening packages are likewise unsound recommendations. Still, tests are ordered when there is little basis for their use. Using tests for screening when there is little evidence in support of their role in pre-symptomatic detection is a common error.

The patient, however well informed, is in no position to make this decision. The physician has a clearly fiduciary role in this regard and has to commit him or herself to the constant need to avoid unnecessary technological interventions.

4. Incentivisation and commercial practices: Once again, the economics of investing in diagnostic technology is one that emphasises increased utilisation. In an effort to increase usage, incentives and kickbacks are offered. Under no circumstances whatever can such practices be condoned. Accepting a commission or kickback is an inexcusable breach of the fiduciary trust that a doctor bears for his or her patient.

The "Master Health Check-up": a case study in poor ethical practices

No other health care package represents the unwholesome nature of diagnostic test use as much as the aggressively touted "Master Health Check-up". The philosophy of the test is laudable: that of early, pre-symptomatic diagnosis and, hopefully, the benefit that accrues from early intervention. Almost always, as commonly offered, it represents poor practice on all four counts named previously.

1. To date, there is no evidence to support the need for anything more than the following as a form of health screening in the otherwise healthy:

   a) a thorough history and physical exam.;body mass index;

   b) resting blood pressure;fasting blood sugar.;lipid profile; and pap smear and breast exam for women.

   All other tests are of dubious value as screening tools. Still, most of these packages will go on to offer an LFT panel, a stress ECG, an ultrasound examination of the abdomen, and a chest X-ray, none of which have any evidence in support of their value in routine screening. What should be no more than a Rs 500 to Rs 700 expenditure ends up with a bill of over Rs 3,000.

2. Provided a baseline set at age 35 is normal, it is recommended that the screening frequency be no more than once very five years till the age of 60, and every two years from there on. Almost always, these master health check-ups are ordered on an annual basis.

3. The use of an extended panel of tests, as listed earlier, represents bad science. The indications are unproven.

4. Add a plan of incentives, and the package is complete in its ability to violate all principles of testing in clinical practice.

The solution to this situation is not easy. The public and the profession have to be constantly sensitised to the fact that technology is wonderful, but has its limits. Audits of diagnostic test usage must be a regular feature of good clinical quality assurance programmes. All ethical institutions must condemn the practice of incentivisation in firm and unequivocal language. There is a movement afoot to "pay for performance" rather than usage; the end result and outcome being the basis for professional compensation, not custom and vaguely determined professional charges.

Add to all this the rarely discussed statistic that India is the most highly privatised health economy in the world. The government spends a woeful 0.9 per cent of the GDP on health. Out-of-pocket health expenditure is as much as 85 per cent of the total health care spending. Contrast this with 5 per cent for the United Kingdom and 15 per cent for the USA. Both these countries spend several hundred times more per capita on health than India. Catastrophic illness commonly drives middle-income families below the poverty line. Against this background, it is the moral imperative of every doctor to exhibit the utmost care and thinking when ordering diagnostic tests.