(92)

MEDICAL TECHNOLOGY - ETHICAL ISSUES

- Anil Pilgaokar -

The practice of medicine by its very nature (a) invades the privacy of individuals (patients) and (b) is vulnerable to what may be best termed "rationalized misuse/illuse potential." It is in this context that ethical facets of Medical Practice become very important. "Technology" (described as the "science of industrial arts" - Consise Oxford Dictionary) by its very genesis lends itself to commercial exploitation. It is in this light that the ethical issues of medical technology become of paramount importance but alas this is a neglected subject in the medical circles. It is with this at the back of the mind that we felt that it would be of pertinence that there is at least some sort of debate and discussion on the subject and hence this paper. It must be clarified at the outset that we are alive to the rather dismal prospects of putting before you a comprehensive paper before you but then that is neither our claim nor our aim to do so. There are limitations of data and more importantly our own limitations which prevent us from taking any firm position(s) in respect of many topics covered in the paper, but then it is our hope that vigourous (rigourous) deliberations at the MFC meeting would be helpful in (a) clarifying the grey areas on the one hand and (b) taking up some position(s) in respect of many aspects discussed in the paper; (which primarily is concerned with raising some questions for discussion).

Admittedly medical technology is a broad term and it would be purposeless to dwelve on every technology concerned with the practice of medicine; for that matter even commonplace 'injections' could be concieved as 'technology, and it would be quite pointless to discuss the ethical aspects of injections here. Rather it is our intention to restrict ourselves to newer sophisticated and/or pervasive medical technologies. In very crude terms, for the purpose of this paper we shall ignore the "first generation technologies" (to burrow the current 'in' expression) like say X-ray machines, and devote the discussion to "higher generation technologies" like CAT-scan or PET-scan.

Grouping/Catagorization of Technologies:

In our survey of literature we have not come across any grouping or catagorization of the various technologies harnessed in medical practice but for the purposes of this paper it is important to device one and so even at the risk of being challenged we have resorted to the following classification:

(i) Function replacement medical technologies eg. Heart-Lung machines or say renal dialysis units; cardiac pace-makers etc.

(ii) Investigational-aid medical technologies like CAT-scan; sonography; echo-cardiography; and its sub-class (ii-a) "Investigational-aid extendable (in some cases) to curative" medical technologies like some endoscopic instruments.

(iii) "Control technologies" like contraceptives, vaccines, and artificial life-support technologies, and of course genetic engineering and sex-preselection technologies.

Each as a class would have its own ethical considerations in addition to general ethical considerations. A priori, the above classification suggests a need for increasing stringency in ethical considerations with each class of the medical technology. Whereas the benifit: risk as also the cost: benefit evaluations vis-a-vis respective populations must form a base for assessing the relevence (in ethical terms) in all the three classes of technologies but it is evident that in the first class, the

..2..

ethical considerations would mainly relate to 'operational' part i.e. use; mis-use; denial of use as also the fees for services etc. The ethical questions in this class mostly relate to the individual patient and the institution (investigating centre) policies. In the next class (ii), the ethical questions - all ethical questions relevent to the previous class are indeed pertinent but in addition, because of the enormous costs of some of the instruments involved ethical considerations in National priorities also must form important facets as many of the instruments lock up and siphon significant monetory resources, and thereby quite often affect (adversely) other medical facilities by depriving funds for these. In the last class, even more wider questions relating to demographic, individual rights vs rights of societies, right (?) to manipulate human systems and forms etc. could figure.

(i) Function replacement technologies: Admittedly most of these technologies are indeed 'life-saving' in critical conditions. But when the question such as whose life? become appearent (as in many cases in our setting do) then ethical issues do arise and these need to be debated in full measure. We shall take just two illustrations to initiate the debate.

(a) It is well-known that in a renal dialysis unit priority for dialysis service is given to acute cases rather than chronic renal failures. Again there is a long waiting list for routine dialysis of chronic renal failure patients (who have to be placed in a queue system because of the paucity of dialysis units. Even so when "J.P." needed dialysis (Jaslog Hospital) he got precedence over others. With all regards for the noble man, the question of whether life of other citizen is worth anyless needs to be taken up.

Again, the dialysis serves as a temparory respite until the organ teransplant arrangements are available, and it is at this juncture that further ethical issues arise. Should kindney of a young person be transfered to older person? The obvious answer is No. Yet one finds that kindney from a young woman (16) being transplanted on to MGR - knowing that the leader was close to his grave.

The "organ trade" racket with the conivance of the medical profession has been highlighted in lay press and yet the ethical questions have not been raised in relevant bodies.

It must be conceled that the examples quoted above, are not strictly ethical issues of medical technology, rather they are issues related to 'medical practice'. All the same these are so intimately connected with the technology usage that the mention made here would not be totally out of place.

(b) Cardiac pace - makers are fairly widely used in our country. And for harnessing this technology Intensive Cardiac Care Units (ICCU) are essential. The usefulness of these units is widely known and acknowledged. What is not generally appreciated is that in our settings is that a proliferation of such units could actually impede the quality of service (medical service) in other faculties of the hospital/ institution. A bed in ICCU could cost (to the institution)

..3..

some 100 times more than the bed in say a general ward (of a public hospital). With relative crunches on the budget of the hospital, the pinch for resources is felt by other facilities. A y keen observer, who has observ the "progress" of some of our premier public hospital in last two decades, could not have failed to notice that with the advent of super-specialities (like ICCU, Artificial Kindly Units and the like), there is a steady degradation in the facilities in other departments. So we have a situation where the best of the facilities would be available in these highly specialized units and at the same time there would be acute dearth of common requirements like cotton, lint and linen in the general wards of the same hospital.

Even at the cost of increasing the length of the paper let us labour over this point a little more. It would not require statistical figures to state that the incedence of tuberculosis in the city of Bombay far, far exceeds that of CVDs. Dr. Amar Jesani (Economic & Political Weekly, Sept.24, 1988) has pointed out that the deaths due to TB in the city have increased over the years thus emphasising the increased requirement of hospital beds for TB in the city, but these have in fact been reduced by Bombay Municipal Corporation (paucity of funds) in the only hospital for tuberculosis in the city of Bombay; whereas there is a spurt in the ICCU beds in the city. (And mind you the ICCU beds cost some 100 times more) The number of ICCU beds in the city(in both public and private hospitals together) are some 30 to 35% that of the beds in the TB hospital.

Is this due to class biases ? CVD is a rich man's diseases and TB is a poor man's diseases. Is it 'ethical' to permit spurt in ICCU beds ?. At the cost of TB beds ?

(ii) Investigational-aid medical technologies:- In this group there are technologies that 'affordable' only to institutions as for example CAT-scan instrument and there the ones like sonography (ultrasound) which can be found with individuals too. What is peculiar, atleast as far as Bombay is considered is that none of the public hospitals have these as of today. And this brings out two possible reasons for this viz(a) the aquisition of these instruments is primarily for 'marketing' reasons - marketing of 'image' of the institution and(b) the law of diminishing returns impedes the aquisition of these instruments in public hospital i.e. the additional benefit in investigations with the aquisition of these instruments is not commensurate with the hugh cost of aquisition, operation and maintenence of the instrument.

It is true that public hospitals have little access to recovery of costs from the patients (even when these have resorted to collecting partial fees from the patients (in Maharashtra). But in private hospitals fees are levied for services, it would be unthinkable to operate these instruments (CAT-scan) if these are to be used solely used in well selected cases only. This is because the capital investment (around Rs.30 lacs) and allocation for operation and maintenence (another Rs.30 lacs) would work out in annual interest of Rs.10 to 12 lacs, which would have to be acrued from the patients, (i.e.Rs.1 lac per month). And considering that the time required for 'processing' a patient is 2 hrs and an 8 hr working period, it

..4

would mean to break even this Rs. 1 lac would have to be recovered from 120 patients or Rs.833/- per patient.

The question that one needs to consider is that would there be 120 truely well selected cases for such scan in a month, every month, every year ? If the answer is NO then it follows that patients who do not require such an investigation would also be enlisted for such investigation - which seems to be the case indeed. How does this stand on ethical grounds ? How does one ensure that such trend is checked ? reversed ? Could there be a well laid down norms for selecting cases ? Could there be an audit of such investigations ? Who would conduct such an audit ? These and many other questions will need to be answered.

Sonography : Ultrasound technology : This has been the domain of obstetricians and many obstetricians perhaps aquire this instrument for 'image' purposes. The premise that the technology is 'safe' (is it conclusively proved ?) has led to rampant ill-use or mis-use. Widespread (though unconfirmed) reports have indicated that this technology is used to detect pregnancy when cheaper, more accurate and non-invasive pregnancy tests are freely available. One reason behind this is to enable to charge fees (ususally exhorbitant) for the investigation. How ethical is this ? What does one do to prevent this ? What are the situations when use of this technology is rational ? Can there be an audit?

(iii) Control technologies :- These are perhaps the most 'impactful' and controversial technologies, and ethical as also philosophical must be discussed.

Contraceptives technology : There has been a shift in technology (ies) 'progressing' "user-safety" to "contraceptive duration of action" (from condoms & diapharms to 'implants'); there is a shift from "user-control" (condoms & diaphrams) to "doctor-control" (implants). The shift has been from birth control to population control. Is this ethical ?

In the case of doctor-control (and therefore state control) contraceptive if there is a contraception failure should it not merit compensation ? Is consent necessary ? imminent ? Is it sought to ?
The question also arises of 'doctored' results of field trials ? Should there be a third party audit of the field trials, particularly since there is an obsession to pushing these technologies.

Vaccines : These technologies being a part of Preventive Medicine are state mediated and at general population level some questions need to be raised. Is consent a necessary pre-requisit before vaccination ? In the event of vaccine failure should the patient not be compensated ? Can vaccination be forced in epidemics ?

Sex-preselection / selective foeticide : Sex-determination and selective foeticide and Sex-preselection technologies

...5

are the ones which have discriminitory and demographic-upset potential of the worst kind and yet these technologies are vigourously persued. In extremely small number of cases where a particular sex foetus could jeopardize the life of the pregnant woman can these be justified if at all. Even so there are no laid down ethical codes in respect of these at all. Apart from catering to individual passion for a particular sex of spring, scientific ego of achieving control over life processes, and a political handle to manipulate sex composition of a population, these technologies have little to offer to mankind. The basic premise in medical research is to improve the quality of human sustenence. These technologies have very little to offer in that direction (except perhaps cases mentioned above.) But they do have an enormously large adverse potential.

Should such technologies be allowed to be harnessed in the country ? Should not the medical comunity decrey these technologies on ethical grounds ?

Genetic Engineering : These technologies can have extremely widespread manifestations and carry with them dichotomous repurcussions. It is with this at the back of mind that there needs to be an extensive debate on the merits and demerits of these technologies to work out a rigid code of procedures.

The justifiable purpose of genetic engineering (we are restricting ourselves only to medical aspects of genetic engineering only) can be to rectify genetic aberrations (note the avoidence of the word abnormality) which can have disasterous or agonizing consequence and nothing more.

However as things stand today the commonly persued (and commonly percieved) goal of the technology is to rectify genetic abnormalities and improve the quality (of genes ?). Just what is abnormal? What is improvement in quality of genes ? On this there is no final word. What is more it is unlikely that there could be any final word on this. Allow us to elaborate this further.

Genetic aberrations like Down's syndrome; inborn errors of metabolism; juvenile diabetes (?) can have disasterous consequences and genetic rectification could possibly avoid these con-sequences and perhaps this technology could have credence in these areas. But say, if a person has six fingers on his/her hand, there is no reason to label him/her as ABNORMAL just because he/she does not conform to the commonly percieved frame of reference, since there is no physiological/physical agony or distress emanating. This line of argument can be extended to ridiculous but effective extent thus.

Blond hair, blue eyes and fair skin is normal to certain populations and a dark skinned, dark eyed and black haired person in this population would be ABNORMAL would genetic engineering experts like to 'improve' (?) this individual to fair skin, blue eyed and blond haired person. Decades

...6

earlier an 'engineer' attempted to do a similar exercise. his name was Hitler and his goal was called Fascism.

Can genetic engineering lead to camouflaged Fascism ? What are the ethical and philosophical positions one takes on genetic engineering ?

Life support technologies employed in lengthing 'vegitative' forms of human (inhuman) existence : Prolonging 'life' with total disregard to QUALITY of life is not uncommon these days Is this ethical ? Is it ethical to perpetuate incapacitation ? What is the position one takes on this issue ?

Research What are (should be) the priorities in research for developing technologies ? Who takes the decisions ? Whose needs (what needs) are given importance ? These are the crucial questions that need to be answered. The situation existing today is not one where 'independent' medical scientists engaged themselves in research and lead to discoveries. Today he or she is either employed directly by commercial corporation or if not is his research effort is heavily financed (and therefore controlled) by commercial corporations (for profits) in the name of 'service to humanity'. The commercial priorities invariably leed to secrecy, unethical conduct of research (witness the contraceptive research) and 'doctored results' and when scientific expertise and commercial power combine (as it is today) all this become ever so easy and free from challenge.

If there are strict laid down norms for drug research, why can their not be similar rigidity of conditions in research for developing technologies ? The question of consent in research & in practice is a virtual farce. Ethics of research and practice is evident by its absence. Use of technologies to serve defence medicine - whether right or otherwise - can be a matter of debate in United States but in India (today) does it have any place ?

Fears :

There can be no conclusions to a paper of this sort only FEARS. When one overviews the situations one distinctly gets the impression that the entire persuit is one of concentration of power, centralization of power - Medical Power; Contraceptive technology is shifting from end-user control to doctor-institution control. High priced instruments are phasing investigation pathology from individual doctor to institution. Function replacement technology vulnerably chains the patient to medical establishment. Artificial Life Support systems virtually confines the patient to institutions with very little else. Through selective foeticide and sex-preselection technology, medical establishment aquires a manipulative potential and this is further compounded with the emergence and proliferation of genetic engineering. We have had political leaders controlling populations, we have had religious leaders controlling populations. Will the Medical man + Commerce man combine also jump into the arena ?

NOTE : We appeal to your generosity and pardon us for stretching the point to ridiculous extent but believe us the intention is only to provoke discussion.

---oOo---