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Editorials

Renal transplantation: A global perspective

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Renal transplantation (RT) is the best modality of renal replacement therapy for most patients with end-stage renal failure as this improves the quality of life and survival, and is cost-effective[1]. The first successful RT between identical twins was performed on 24th December 1954, and at present, more than 20000 RTs are performed annually worldwide. The longest-surviving RT recipients worldwide are well 40 years after receiving a living-related kidney and 34 years after receiving a cadaveric RT. The number of RT performed annually in the UK (2000), USA (16000) and Australia (520) has remained constant, whereas an exponential rise in the number of patients on the transplant waiting list in the UK (6000), USA (68000) and Australia (2000) has resulted from organ shortage. The average waiting time for DD transplantation is 3 years.

The introduction of ciclosporin in 1980, Tacrolimus and MMF in 90s, sirolimus, and anti-interleukin-2 receptor antibodies (basiliximab and daclizumab) recently, has been associated with reduced incidence of acute rejection episodes during the first year after RT. Improvement in the graft survival has been confirmed by Hariharan et al. in an analysis of 93,934 RTs performed in the USA between 1988 and 1996, where the one-year survival and half-life for grafts from live donors (LD) and deceased donors (DD) were 93.9 and 87.7 percent; and 21.6 and 13.8 years, respectively[2].

The DD rate has diminished over the past 10 years, but there has been a corresponding increase in LD transplants. More recently, utilisation of non-heart-beating donor (NHBD) source has contributed significantly to the donor pool. At present, 12 out of 26 centres in the UK have NHB donor programme and the number of kidneys harvested from NHBD source was 143 in the year 2005. Countries like Spain, Austria and Belgium have introduced an "opt-out" system where the organs from DD are harvested unless the donor has registered to the contrary, which is different in UK and USA where an "opt-in" system prevails, which honours the wishes of the next of kin of the donor. The opt-out system has led to significant increase in kidney donation rates (per million populations) in Spain (35), Austria (25) and Belgium (22) as against UK (14) and USA (21). Although 12 million people are registered in the UK NHS Organ Donor Register, the refusal rate for DD remains as high as 40%.

LDRT is the way forward as there are several advantages over DD transplantation, such as the RT can be performed in a planned manner even before a recipient enters dialysis programme, requires less intense immunosuppression and has better graft survival. Increasing number of patients is undergoing LDRT against ABO blood group barrier and positive cross-match, which was impossible until a few years ago. 45% of the RTs performed in the USA, 35% in Australia, 30% in the UK and 20% in Europe as a whole are from LD sources and there is an increasing trend globally. The system of live-unrelated transplantation, paired exchanges and Good Samaritan donation is gaining popularity internationally, which has rescued several recipients with rare HLA specificities and sensitisation from failed previous transplants. Introduction of the technique of laparoscopic retrieval of donor kidneys in 1995 has further improved the kidney donation rate as the technique is associated with less postoperative pain, shorter hospitalisation and early return to work[3]. At present, 7 out of 26 centres in the UK including Sheffield, are practising the technique.

In conclusion, although the success rates of RT have improved remarkably, growing shortages exist in the supply of kidney available for transplantation leading to prolonged suffering of the patients on dialysis. Various strategies as discussed above are underway internationally in a concerted manner to overcome this problem.

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Hospitals for profit?

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There have been a very significant increase in the construction of hospitals and medical colleges in the country. This is of course good news for the patients; now they do not have to make the troublesome and difficult journey to Kathmandu or elsewhere for treating simple procedures. Many of these hospitals provide good care. Some of then may not be up to the standard that is expected. But this would be temporary as the demands of running a medical college with quality health care and teaching is mandatory. Market forces would also make it compulsory to ensure such standards. Parents who invest so much money in their wards would expect a well qualified product at the end of it all. Besides, we also have a vigilant Nepal Medical Council which believes that certain criteria are needed to run a good college. Obviously, demand and supply is still the dominating force influencing the construction of newer institutions. However, trends show that it is financially feasible to run medical colleges with or without dental and nursing college.

This trend in Nepal appears to be just a start to what has been happening in India. The number of medical colleges and hospitals being inaugurated in India is tremendous. The huge demand and supply gap makes it imperative that big business houses also get into action. And so they have. It is envisaged that in the health business there will be by 2012, a market worth $65 billion[1]. These new corporate hospitals as they are called are complete winners for the business houses. The Apollo group is planning to open 38 hospitals and increase their bed strength to 10000. Fortis Healthcare (Ranbaxy Hospital Chain) which recently acquired Escorts Hospital, plans to run 12 hospitals and then increase the number to 35 all over India with a outlay of Rupees 2300 crores.

The Manipal group wants to establish 10 hospitals and so on[1]. Besides the practice of medicine, these corporate houses want to set the highest standards for teaching and research in the arena of medical and biosciences. They plan to rival John Hopkins and the Mayo Clinic! Ambani of Reliance Healthcare also wants to grab some of the pie. Thanks to rising income levels of the middle class of 300 million population and a booming medical tourism which is already a $300 million industry with a growth rate of 30 %[1], the sky is the limit ! To do this there has to be a good blend of technology, clinical expertise and personalized care to achieve patient satisfaction. Should we in Nepal not follow them? Some good tertiary care facilities are available here in Cardiac and Neuro-Surgery. Centres for ophthalmic surgery for disease like cataract, retinal and oculoplastic surgery are internationally famous. Disabled children with post burn contractures, club foot are successfully treated in hospital for disabled children. Laparoscopic surgery could be another attraction.

The Border States in India could benefit. Cardiac patients from Pakistan could come to Kathmandu for surgery. They are presently going to South India and getting visa is a problem. The sea saw political relations between India and Pakistan could be exploited to attract the patients from Pakistan. Thus, the scope for medical tourism in this country is there and has to be explored.

Some definite hard decisions have to be taken for the sake of good health of the Nepali people. It is not the time to sit down and say "*Ke garne*".

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Specific diseases mortality in Nepal

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About 57 million deaths occur every year worldwide.[1] Of them more than three fourths (76.7%) is reported to occur in the developing countries.[1] South East Asia contributes to about 22% of the total global death. Nepal falls under the category of "high mortality" developing countries designated by World Health Organization (WHO). Besides, WHO considers that the coverage of registration of death is far less than 25%.

It is estimated that every year some 222,254 deaths take place in Nepal. That translates into 609 deaths per day. However the cause of death is not known because an overwhelming majority of deaths in Nepal occurs at home, and in most instances, the exact cause of death can not be established. As the mortality data are not available, grouping them under various strata, e.g. by sex, age-group, locality, circumstances, geo-ecological or administrative division is always very much sketchy.

The official health statistics of Nepal show that over the years, the health indicators have improved to a great extent. From a mere 36.5 years of life expectancy at birth, this indicator has gone up to 62.2 years.[2] Similarly, the crude birth rate (CBR) has decreased from 52 per 1000 to 33 per thousand populations. Similarly, crude death rate (CDR) has decreased from 27 per thousand in 1966[3] to 9.7. For a developing country like Nepal, these changes are definitely a good sign of "progress". However, these "national" indicators might vary across various age groups, geo-ecological region, social groups, and one to another district.

Many documents reveal that child mortality and infant mortality has declined over the years thanks to various targeted interventions. The targeted interventions might have contributed significantly to the increase in the life expectancy at birth. However, the pattern of death might have been changed from child to adult or the elderly. This information is very important to plan for the health interventions in future. Nepal is entering the phase of "epidemiological transition" from high incidence/prevalence of infectious diseases to increasing incidence/prevalence of non-communicable diseases. This is very important to all the stakeholders involved in health care for designing and providing future health interventions. Various risk factors are being added to the daily life of people: tobacco, alcohol, sedentary life, "junky foods" (highly purified) low-fibre diet, carbohydrate and fat rich food, insecticide/pesticide treated fruits and vegetables. The pollution of air and environment are other major factors in urban areas. All these factors are going to influence the "health" of people in future in the background of the primitive health infrastructure, focused solely to provide "primary health care" to population.

However, while seeking the specific causes of death there is lack of information. Data on the mortality pattern in Nepal in absolute terms are invariably not available. It was not possible to get any community based survey done to look into the mortality issues. Many public health programs are designed to achieve the goal of "reducing the mortality" from specific diseases, but there is lack of information on mortality pattern in the medical/health literature of Nepal. Few "targeted" diseases mention the estimated number of deaths and are basically "program based" to highlight the issue and so might often be biased because these are often "generalized" from a small study. Looking at the mortality from different aspects was probably not carried out. Above all there is no functioning system of collecting information on the cause of death. In this scenario it is necessary to carry out studies to explore the causes of death in absolute terms.

All industrialized countries transformed their health system by recording the vital statistics on age, sex and socio-economic distribution of births and deaths in late 19th and early 20th centuries. This helped them to see the changes in mortality pattern and also in detecting new epidemics such as HIV/AIDS. However, developing countries do not have systematic and functioning system to record the deaths and hence, there is paucity of data. It is time that we also thought on these lines.

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Imaging education: A radiologist's view

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As medicine has become more and more specialized, the educational experience of students has become increasingly fragmented. You would not want anybody to be a doctor who did not understand anatomy, physiology, pathology, biochemistry, microbiology and pharmacology, or who lacked competence in obtaining a medical history or performing a physical examination. Medical students are also required to demonstrate a basic understanding of the clinical disciplines of medicine, surgery, paediatrics, and obstetrics and gynaecology. In fact, students are tested in each of these subjects and must pass these examinations to qualify for graduation. Medical students are tested because it has long been recognized that they must have a minimum level of ability, a certain degree of literacy, with all these subjects in order to function as physicians.

But medicine is neither doctrinaire nor static. Things change with time. New discoveries have been made and even new disciplines have appeared, such as genetics and molecular biology, and, yes, diagnostic imaging. Today in our system of education, it is generally accepted that in order to practice medicine, emphasis is given to medicine, surgery, obstetric and gynaecology, paediatrics including orthopaedics, eye, ENT, dermatology etc. And the same should be said for imaging: because imaging in all its forms-radiography, CT, MRI, nuclear imaging and sonography - is now essential to the practice of modern medicine and surgery.

Imaging has grown exponentially because of the infusion of new technologies and their ready adoption by the medical profession in recognition of the inherent high sensitivity and specificity that these technologies bring to the identification and assessment of disease. Because of these developments, it is reasonable to maintain that all medical students as well as practicing physicians should have knowledge of the appropriate use of imaging in order to care properly for patients. This knowledge should include the indications, contraindications, and limitations of each imaging technology, and the need for proper sequencing of examinations. Physicians should also have a basic understanding of radiologic physics, including an awareness of the harmful effects of radiation, the time-distance-dose relationship, and the implications of this relationship for those who use fluoroscope or C-arm. Physicians should also have similar basic understanding of contrast media.

What is the current state of the imaging education? It is, at best, spotty.

Despite the obvious importance of imaging, medical students receive woefully little formal training in radiology. In most of our curriculum radiology is kept under the clinical disciplines which is not adequate for the training and which has no meaning, since the students do not undergo meaningful assignments or test and examinations. Medical students often view radiology electives as a little vacation from an otherwise arduous course of clinical assignments and study.

Since X-rays, CT, MRI, nuclear medicine, ultrasound are an integral part of all clinical rounds on patients and are discussed in every conference, our medical education should prepare students for the proper use of imaging as well. They must become well grounded in the essentials of imaging as medical students to properly administer patient care in their future practice as physician.

Radiology department must be actively involved in the formal education of medical students. In a time of rapid change in medical science and health care, some of the traditional assumptions about medical education no long hold true. Hence, medical students should be properly prepared to practice medicine in this imaging milieu.