

Renal Data from Asia-Africa

Iranian Kidney Transplantation Society Seeks to Answer its Questions through a Link between Scientists and Young Researchers

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ABSTRACT. The Iranian Society of Organ Transplantation (ISOT), in an effort to further invest in transplantation-related research, established a scientific link with Baqiyatallah University of Medical Sciences (BUMS) at the beginning of the year 2006. BUMS instituted a network encompassing 1) Nephrology and Urology Research Center (NURC), directed by prominent nephrologists and urologists, 2) Clinical Research Unit (CRU), managed by qualified and competent young researchers, and 3) Medicine and Health Promotion Institute (mhpinstitute.ir), which is a private research and development institute. Study titles were then extracted in discussion sessions between the NURC and CRU, the latter also being responsible for writing research protocols to be reviewed by the University ethical board for research grants. The CRU has hitherto carried out several research grants based on the following criteria: 1) accommodating the main objectives of the ISOT, i.e. the improvement in survival rates and well-being standards as well as the minimization of costs, 2) conducting low-budget yet cutting-edge research, and 3) ensuring publication-worthy study titles. This is a review of the tie between scientists and research and methodological assistants, which has already come to realization in the face of financial constraints.

Keywords: Young researchers, Scientists, Medical Research, Iran, Kidney transplantation

Introduction

The overriding concern of medicine is to offer humans a longer and better life.¹ Longevity is synonymous with lower mortality and higher survival rates with decreased morbidities and

elevated mental and physical well-being standards.²

In today's economy-oriented world, health economy involves cost limitation of any diagnostic, treatment, and rehabilitation modality tends to be a high priority.³

A first-choice treatment modality for patients with chronic renal failure,⁴ kidney transplantation in Iran is mainly the responsibility of The Iranian Society of Organ Transplantation (ISOT). The ISOT has invested further in research in recent years with the aim of upgrading the country's health care system. To

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that end, the ISOT established a close tie with the reputable Baqiyatallah University of Medical Sciences (BUMS) at the beginning of the year 2006. The BUMS Research Deputy established a network comprising 1) the Nephrology and Urology Research Center (NURC), administered by high-ranking nephrologists and urologists with numerous publications in the field, and 2) the Clinical Research Unit (CRU), managed by qualified young researchers with remarkable previous research experience. The CRU is also supported by Medicine and Health Promotion Institute, which is a private research and development institute (www.mhpinstitute.ir).

Discussion sessions between the NURC and CRU for the extraction of study titles and research protocols, written by CRU, were reviewed by the ethical board of the University for Grants. The CRU, under the auspices of the NURC and BMSU, has thus far conducted several research grants based on the following criteria: 1) accommodating the main objectives of the ISOT, i.e. the improvement in survival rates and well-being standards as well as the minimization of costs; 2) conducting a low-budget yet cutting-edge research, and 3) ensuring publication-worthy study titles.

Here we present a review of this link between scientists and research and methodological assistants, which has proved to be a great success story in a developing country with its own financial constraints. For example, 42 of 54 abstracts submitted to the 10th Middle East Society for Organ Transplantation (MESOT) Congress were accepted, and later 30 full papers based on these studies were submitted to the Journal of Transplantation Proceedings and published in May 2007 issue. From further submissions to other journals, another 5 manuscripts have met publication criteria from other MEDLINE- or ISI-indexed journals at the time of writing this paper. Another 10 manuscripts are in the process of review in peer review journals.

CRU activities

The CRU took the following steps before

designing any research:

1. A survey of previous transplantation research in Iran: We carried out a systematic bibliometric study into the existing literature so as to identify the areas that lacked in research and empirical data in the country's renal transplantation system.⁵ The survey revealed that despite the great interest shown in the topic of transplantation, the Iranian researchers were inclined to neglect certain fields of transplantation. Nevertheless, we found a pool of invaluable information that could be used by other countries, not least those in the MESOT countries.⁶

2. An assessment of the quality of the previous MESOT Congress: Presenting the results in the MESOT Congress being a priority for the CRU, an evaluation of the quality of the abstracts presented in the previous 9th Congress of the MESOT helped highlight the weak and strong points of the materials.⁷

3. A determination of the stability of our kidney transplantation data set: By utilizing meticulous analysis we succeeded in demonstrating the high stability of our transplantation data set. Needless to say, the higher the accuracy of the databank, the higher is the accuracy of the analysis of the findings.⁸

4. A study into the ethical issues in the Iranian model of kidney transplantation: Iran has witnessed a rapid growth in kidney transplantation in recent years:⁹ the Iranian health care system covers the costs and provides a generous insurance coverage regardless of the socio-economic status of the candidates. It is, therefore, expected that a higher number of transplantation candidates with a low socio-economic status will seek transplantation in the future.¹⁰ We noted a surge in the deceased-donor kidney transplantation in Iran thanks to an intensive media campaign for heightening public awareness, recruitment of more transplantation centers, enhancement of the system of cadaveric donations registration, and facilitation of the process of finding and relating the donor with the potential recipient.¹¹ Iran has sought to design models tailored to the local needs and conditions and has called for the establishment of an international commi-

tee on transplantation in refugees.¹² Nonetheless, it is a field that has yet to be fully explored and lacks a standard protocol.¹³

The CRU, then, took the following steps to design research:

1. An investigation into kidney transplantation survival rates:

1.1. Overall outcome: We entered the largest number of renal transplant subjects into our survival analysis (the latest and largest in the country thus far). One-, 5-, 10-, and 15-year graft survival rates were 85%, 68%, 46%, and 24%, respectively; and patient survival rates were 93%, 86%, 79%, and 66%, respectively.¹⁴

We also found that C2, but not C0, in the early 6 months' post-transplantation period¹⁵ and the number of Human Leukocyte Antigen type B (HLA-B) mismatches,¹⁶ but not pregnancy,¹⁷ affected long-term graft survival. The graft survival in pediatric transplantation was poor, which could be due to a whole host of reasons, such as insufficient skill in our transplantation teams.¹⁸

1.2. Inpatient outcome: A simple demographic and clinical variables helped us design a prediction model to estimate the probability of inpatient mortality and graft loss.¹⁹ We also noted that the ranking in our inpatient mortality was totally different from that of causes of death in renal recipients. Furthermore, we found such rare complications as cerebrovascular accident (CVA) and surgical complications to have high fatality rates.²⁰

1.3. Post-renal transplantation re-hospitalizations: We demonstrated that the shift in the immunosuppression protocol from azathioprine (AZA) to mycophenolate mofetil (MMF) in 2000 brought about two noticeable changes worldwide: an increase in the rate of infection and re-hospitalization and a decrease in the rate of graft rejection.²¹ In another study, we concluded that taking the variables of age and diabetes as the cause of end-stage renal disease (ESRD) into account could significantly improve the diagnosis of cytomegalovirus (CMV) disease in post-renal transplantation re-hospitalized patients.²² In addition, the most frequent site of mucormycosis infection was the lungs in our patients, with a high fatality.²³ In

the case of autosomal dominant polycystic kidney disease (ADPKD) patients, we arrived at the conclusion that without elective colectomy for diverticulitis, the fatal complications were not rare.²⁴

2. Morbidity in kidney transplantation:

2.1. Somatic comorbidities: The prevalence of medical comorbidities in our kidney-transplant recipients was high; the highest prevalence was due to non-ischemic heart diseases, followed by visual disturbances, and musculoskeletal disorders.²⁵ This directed the transplantation team to a multidimensional approach.

2.2. Psychological status: We discovered that restlessness and psychomotor agitation imposed high degrees of morbidity on renal-transplant recipients.²⁶ Due to the fact that depressive symptoms did not seem to improve after renal transplantation, we screened our renal recipients for it, especially those with a history of rejection or young age at the time of transplantation.²⁷ We noted that anxiety and depression were affecting different aspects of our patients' well-being as the quality of life, sleep, marital relation, and sexual relationship.²⁸ We concluded that increasing age did not result in poor Health-Related Quality of Life (HRQoL) in all domains, which further favored the case for renal transplantation in the elderly.²⁹ We provided equations for the prediction of poor post-transplantation HRQoL³⁰ and marital relationship³¹ by using simple variables with acceptable accuracy, which can be used in decision-making in clinical settings. These two factors are of great importance because achieving a good HRQoL is one of the main aims of transplantation,³⁰ and marital relationship is correlated with mortality, morbidity, immune function, and non-compliance.³¹ Our assessment of the quality of sleep in our kidney-transplant patients revealed that a poorer quality of sleep was associated with higher medical comorbidity and poorer emotional state³² and that it was more prevalent in recipients with ESRD secondary to hypertension.³³ We illustrated that chronic pain decreased the quality of life in renal transplantation patients, albeit less than that experienced by patients under chronic hemodialysis.³⁴ We stressed the

need for further attention to renal-transplant recipients with diabetes-induced ESRD in follow-up programs.³⁵ We also revealed that improvement of sexual function of female and male kidney-transplant recipients required special attention to mental and physical health, respectively.³⁶

2.3. Cost of kidney transplantation: Given the increasing prevalence of diabetes mellitus (DM) in some countries, we found that the association between hospitalization costs of post-transplant patients and DM is of great economic importance to many transplantation centers.³⁷ Age of the recipients at the time of transplantation was also a main factor affecting post-renal transplantation re-hospitalization in our patients.³⁸ We noted that the severity of pain seemed to amplify the amount of health care use among kidney-transplant patients.³⁹ Our investigations showed that prolonged hospital stays accounted for more than 62% of all hospital costs; however, they comprised only 26% of the kidney-transplant recipients.⁴⁰ Hospital statistics can be employed as a valuable tool for health care policy makers to monitor transplantation outcomes.⁴¹

We conclude that a network of well-established scientists and young researchers, eager to conduct research and to publish was realized in Iran. We advocate the utilization of such models by other countries' health care systems under the supervision of universities.

References

1. The Benefits of Medical Research and the Role of the NIH. Office of the Chairman, Connie Mack. May 17, 2000.
2. Periago MR. Longevity and the quality of life: A new challenge for public health in the Americas. *Pan Am J Public Health* 2005;17(5/6):297-8.
3. Linjer E, Jornmark J, Hedner T, Jönsson B; Stop Hypertension-2 Group. Predictors for high costs of hospital care in elderly hypertensive patients. *Blood Press* 2006;15(4):245-50.
4. Suthanthiran M, Strom TB. Renal transplantation. *N Engl J Med* 1994;331(6):365-7. Petrak J. Bibliometric indicators in evaluation of research activity. 1. Publishing and evaluation of research. *Lijec Vjesn* 2001;123:77-81.
6. Aslani J, Khedmat H, Assari S, et al. Transplantation research in Iran: a bibliometric study. *Transplant Proc* 2007;39(4):788-9.
7. Nourbala MH, Einollahi B, Khoddami-Vishteh HR, Assari S, Simforoosh N. IX(th) MESOT Congress: Quality of the Abstracts. *Transplant Proc* 2007;39(4):786-7.
8. Hollisaaz MT, Khedmat H, Effatmanesh-Nik M, et al. Data-entropy analysis of renal transplantation data. *Transplant Proc* 2007;39(4):930-1.
9. Noorbala MH, Rafati-Shaldehi H, Azizabadi-Farahani M, Assari S. Renal transplantation in Iran over the past two decades: A trend analysis. *Transplant Proc* 2007;39(4):923-6.
10. Nourbala MH, Einollahi B, Kardavani B et al. The cost of kidney transplantation in Iran. *Transplant Proc* 2007;39(4):927-9.
11. Einollahi B, Nourbala MH, Bahaeloo-Horeh S, Assari S, Lessan-Pezeshki M, Simforoosh N. Deceased-donor kidney transplantation in Iran: trends, barriers and opportunities. *Indian J Med Ethics* 2007;4(2):70-2.
12. Einollahi B, Noorbala MH, Kardavani B, et al. Kidney transplantation: is there any place for refugees? *Transplant Proc* 2007;39(4):895-7.
13. Nourbala MH, Ghaheri H, Kardavani B. Our experience with third renal transplantation: results, surgical techniques and complications. *Int J Urol* 2007;14(12):1057-9;
14. Einollahi B, Pourfarziani V, Ahmadzad-Asl M, et al. Iranian model of renal allograft transplantation in 3028 recipients: Survival and risk factors. *Transplant Proc* 2007; 39(4):907-10.
15. Nemati E, Einollahi B, Taheri S, et al. Cyclosporine trough (C0) and 2-hour postdose (C2) levels: Which one is a predictor of graft loss? *Transplant Proc* 2007;39(4):1223-4.
16. Pourfarziani V, Einollahi B, Assari S, et al. A link between the outcome of living unrelated kidney transplantation and HLA compatibility: a preliminary report. *Arch Med Sci* 2007; 3(2):108-111.
17. Kashanizadeh N, Nemati E, Sharifi-Bonab M, et al. Impact of pregnancy on the outcome of kidney transplantation. *Transplant Proc* 2007; 39(4):1136-8.
18. Torkaman M, Khalili-Matin-Zadeh Z, Azizabadi-Farahani M, et al. Outcome of living kidney transplant: pediatric in comparison to adults. *Transplant Proc* 2007;39(4):1088-90.
19. Nemati E, Pourfarziani V, Jafari AM, et al.

- Prediction of inpatient survival and graft loss in rehospitalized kidney recipients. *Transplant Proc* 2007;39(4):974-7.
20. Khedmat H, Araghighzadeh H, Assari S, Moghani-Lankarani M, Aghanassir M. Which primary diagnosis has the highest in-hospital mortality rate for kidney recipients? *Transplant Proc* 2007;39(4):901-3.
 21. Pourfarziani V, Panahi Y, Assari S, Moghani-Lankarani M, Saadat SH. Changing treatment protocol from azathioprine to mycophenolate mofetil: Decrease in renal dysfunction, increase in infections. *Transplant Proc* 2007;39(4):1237-40.
 22. Nemati E, Eizadi M, Lankarani MM, et al. Cytomegalovirus disease after kidney transplantation: Clues to accurate diagnosis. *Transplant Proc* 2007;39(4):987-9.
 23. Aslani J, Eizadi M, Kardavani B, et al. Report of Mucormycosis after kidney transplantations. *Scan J Infect Dis* 2007;39(8):703-6.
 24. Pourfarziani V, Mousavi-Nayeeni SM, Ghaheri H, et al. The outcome of diverticulosis in kidney recipients with polycystic kidney disease. *Transplant Proc* 2007;39(4):1054-6.
 25. Hollisaaz MT, Aghanassir M, Lorgard-Dezfuli-Nezad M, Assari S, Hafezie R, Ebrahiminia M. Medical comorbidities after renal transplantation. *Transplant Proc* 2007;39(4):1048-50.
 26. Noohi S, Tavallaii SA, Bazzaz A, Khoddami-Vishteh HR, Saadat SH. Restlessness and psychomotor agitation after kidney transplantation: Their impact on perceived health status. *Psychol Health Med* 2008;13(2):249-56.
 27. Karaminia R, Tavallaii SA, Lorgard-Dezfuli-Nejad M, et al. Anxiety and depression: a comparison between renal transplant recipients and hemodialysis patients. *Transplant Proc* 2007;39(4):1082-4.
 28. Noohi S, Khaghani-Zadeh M, Javadipour M, et al. Anxiety and depression are correlated with higher morbidity after kidney transplantation. *Transplant Proc* 2007;39(4):1074-8.
 29. Noohi S, Karami GR, Lorgard-Dezfuli-Nejad M, Najafi M, Saadat SH. Are all domains of quality of life poor among elderly kidney recipients? *Transplant Proc* 2007;39(4):1079-81.
 30. Khedmat H, Karami GR, Pourfarziani V, Assari S, Rezailashkajani M, Naghizadeh MM. A logistic regression model for predicting health-related quality of life in kidney transplant recipients. *Transplant Proc* 2007;39(4):917-22.
 31. Fathi-Ashtiani A, Karami GR, Einollahi B, et al. Marital quality in kidney transplant recipients: Easy to predict, hard to neglect. *Transplant Proc* 2007;39(4):1085-7.
 32. Kachuee H, Ameli J, Taheri S, et al. Sleep quality and its correlates in renal transplant patients. *Transplant Proc* 2007;39(4):1095-7.
 33. Ameli J, Kachuee H, Assari S, et al. Does etiology of end-stage renal disease affect sleep quality in kidney transplant recipients? *Transplant Proc* 2007;39(4):1091-4.
 34. Nourbala MH, Hollisaaz MT, Nasiri M, et al. Pain affects health-related quality of life in kidney transplant recipients. *Transplant Proc* 2007;39(4):1126-9.
 35. Ramezani M, Ghoddousi K, Hashemi M, et al. Diabetes as the cause of end-stage renal disease affects the pattern of post kidney transplant rehospitalizations. *Transplant Proc* 2007;39(4):966-9.
 36. Tavallaii SA, Fathi Ashtiani A, Nasiri M, Assari S, Maleki P, Einollahi B. Correlation between sexual function and post-renal transplant quality of life: Does gender matter? *J Sex Med* 2007;4(6):1610-8.
 37. Ghoddousi K, Ramezani MK, Assari S. Primary kidney disease and post-renal transplantation hospitalization costs. *Transplant Proc* 2007;39(4):962-5.
 38. Nemati E, Saadat AR, Hashemi M, Khoddami-Vishteh HR, Moghani-Lankarani M. Causes of rehospitalization after renal transplantation; Does age of recipient matter? *Transplant Proc* 2007;39(4):970-3.
 39. Hollisaaz MT, Noorbala MH, Irani N, et al. Severity of chronic pain affects health care utilization after kidney transplantation. *Transplant Proc* 2007;39(4):1122-5.
 40. Naderi M, Aslani J, Hashemi M, et al. Prolonged rehospitalizations following renal transplantation: causes, risk factors, and outcomes. *Transplant Proc* 2007;39(4):978-80.
 41. Pourfarziani V, Rafati-Shaldehi H, Assari S, MT, et al. Hospitalization databases: A tool for transplantation monitoring. *Transplant Proc* 2007;39(4):981-3.