

## Comparing costs of renal replacement therapy in a Brazilian city: a case for improvement of our health policies

Comparando custos da terapia renal substitutiva em uma cidade brasileira: motivação para melhorias nas nossas políticas de saúde

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Chronic kidney disease (CKD) is an important health problem affecting close to 13% of the global adult population.<sup>1</sup> The treatment of advanced CKD, referred as end-stage renal disease (ESRD), is costly and may represent a substantial economic burden for developed as well as developing nations. Non-rarely, countries may spend more than 8% of their health budget with the treatment of less than 2% of population.<sup>2</sup>

Renal replacement therapy (RRT) modalities in ESRD include hemodialysis (HD), peritoneal dialysis (PD) and kidney transplantation. The vast majority of ESRD patients are worldwide managed by hemodialysis, but the modality of RRT that offers the best survival and improved quality of life is kidney transplantation.<sup>3,4</sup> Data from developed as well as developing countries indicate that kidney transplantation is the most cost-effective modality of RRT.<sup>5-7</sup>

In the present issue of the journal, Gouveia *et al.*<sup>8</sup> present an interesting analysis of the economic impact of the RRT program in Curitiba, Paraná, Brazil, employing chart review and cost analysis by procedure for a 6-month period. Costs related to medications and hospital admissions were estimated and also taken into account. In spite of the pitfalls inherent to the strategy adopted to estimate the costs of the different modalities of RRT, the authors concluded that from the second year on the annual costs of kidney transplantation were substantially lower than the ones of other RRT modalities. Comparisons were also made between PD and hemodialysis provided by either the

public health system or private health care organizations. Based on their findings which are in line with previous studies,<sup>5-7</sup> the authors suggest that the health care policies regarding treatment of ESRD should be directed to the most cost-effective modality, kidney transplantation.

Will kidney transplantation be the main modality to treat ESRD in a near future? Currently the answer to this question is almost certainly “No”, mainly because of the unfavorable proportion of donation and demand for organs. Even in countries with the best performances, the deceased donation rate is lower than 50 pmp, with most of the countries in the world sitting far below these outstanding numbers.<sup>9</sup> If we take into account that, in developed countries, the annual incidence rates of treated ESRD reach figures ranging from 350 to 450 patients pmp,<sup>10</sup> it can be concluded that dialysis will continue to be the mainstay therapy to treat ESRD for a long time.

The annual incidence rate of treated ESRD in developing countries are in general lower perhaps due to restricted access to treatment but, in general, also far exceeds the annual donation rate. In Brazil, for instance, the estimated annual incidence rate of ESRD in 2014 was 180 pmp,<sup>11</sup> whereas the annual rate of deceased donation was 14 pmp.<sup>12</sup>

The finding that dialysis will continue as the main mode of RRT for years should not be seen as an obstacle to stimulating kidney transplantation. In line with the conclusion of the study by Gouveia *et al.*,<sup>8</sup> it is our view that the public health system as well as the

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private health care organizations should undertake efforts to encourage kidney transplantation as the primary modality for ESRD treatment by promoting the expansion of the donation pool and providing an adequate funding.

## REFERENCES

- Hill NR, Fatoba ST, Oke JL, Hirst JA, O'Callaghan CA, Lasserson DS, et al. Global Prevalence of Chronic Kidney Disease - A Systematic Review and Meta-Analysis. *PLoS One* 2016;11:e0158765. DOI: <http://dx.doi.org/10.1371/journal.pone.0158765>
- Costs of ESRD. United States Renal Data System. *USRDS 2016 Annual Data Report: Atlas of Chronic Kidney Disease & End-Stage Renal Disease in the United States*. Bethesda: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2016. p. 329-340.
- Czyżewski L, Sańko-Resmer J, Wyzgał J, Kurowski A. Assessment of health-related quality of life of patients after kidney transplantation in comparison with hemodialysis and peritoneal dialysis. *Ann Transplant* 2014;19:576-85. DOI: <http://dx.doi.org/10.12659/AOT.891265>
- Maglakelidze N, Pantsulaia T, Tchokhnelidze I, Managadze L, Chkhotua A. Assessment of health-related quality of life in renal transplant recipients and dialysis patients. *Transplant Proc* 2011;43:376-9. DOI: <http://dx.doi.org/10.1016/j.transproceed.2010.12.015>
- Just PM, Riella MC, Tschosik EA, Noe LL, Bhattacharyya SK, de Charro F. Economic evaluations of dialysis treatment modalities. *Health Policy* 2008;86:163-80. DOI: <http://dx.doi.org/10.1016/j.healthpol.2007.12.004>
- Haller M, Gutjahr G, Kramar R, Harnoncourt F, Oberbauer R. Cost-effectiveness analysis of renal replacement therapy in Austria. *Nephrol Dial Transplant* 2011;26:2988-95. DOI: <http://dx.doi.org/10.1093/ndt/gfq780>
- Sánchez-Escuredo A, Alsina A, Diekmann F, Revuelta IE, Esforzado N, Ricart MJ, et al. Economic analysis of the treatment of end-stage renal disease treatment: Living-donor kidney transplantation versus hemodialysis. *Transplant Proc* 2015;47:30-3. DOI: <http://dx.doi.org/10.1016/j.transproceed.2014.12.005>
- Gouveia DSS, Bignelli AT, Hokazono SR, Danucalov I, Siemens TA, Meyer F, Santos LS, Martins ZCL, Mierzwa TC, Furquim R. Analysis of economic impact between the modalities of renal replacement therapy. *Braz J Nephrol* 2017;39:162-171.
- IRODaT - International Registry in Organ Donation and Transplantation [cited 2017 Mar 5]. Available from: <http://www.irodat.org/img/database/grafics/grafic1.jpg>
- International comparisons. United States Renal Data System. *USRDS 2016 Annual Data Report: Atlas of Chronic Kidney Disease & End-Stage Renal Disease in the United States*. Bethesda: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2016. p. 533-66.
- Sesso RC, Lopes AA, Thomé FS, Lugon JR, Martins CT. Brazilian Chronic Dialysis Census 2014. *J Bras Nefrol* 2016;38:54-61. DOI: <http://dx.doi.org/10.5935/0101-2800.20160009>
- Associação Brasileira de Transplante de Órgãos. [cited 2017 March 5]. Available from: [www.abto.org.br](http://www.abto.org.br)