



Transplantation Activity in the Organizzazione Centro-Sud Trapianti: A Retrospective Study From 1999 To March 2004

R. Pretagostini, D. Peritore, L. Minieri, F. Russo, and R. Cortesini

ABSTRACT

Background. The Organizzazione Centro-Sud Trapianti (OCST) was set up in 1998 to coordinate the organ procurement and transplantation activity of 9 Italian regions (Abruzzo, Basilicata, Calabria, Campania, Lazio, Molise, Sardinia, Sicily, and Umbria), each referring to a local Regional Transplant Center. The aim of the present study was to estimate organ donation and transplantation rates in the OCST from 1999 to March 2004.

Materials and Methods. A retrospective study of organ donors and transplantation activity in the OCST during the study period was performed, pointing out donor epidemiological data, such as age and sex ratio, causes of death, reasons for discarding, and transplantation rates. Donors reported to the OCST were divided into 6 groups: A (October 1998–December 1999), B (2000), C (2001), D (2002), E (2003), and F (January–March 2004).

Results. From 1999 to March 2004, 2272 potential donors were reported to the OCST. The nonharvested donors rate increased up to 52% (Group F), which was lower than the previous period (Group E, 64%), but higher than in 1999 (Group A, 43%). The major contributing factor was family opposition, which was 38% in 2002 and 41% in 2003.

Conclusions. The introduction of the OCST into the field of organ transplantation has yielded an increase in organ donation and transplantation activity within the regions that set it up from 1999–2003. This trend is a consequence of the growth of reported donors from the intensive care unit, which grew 12.7% from 2002 to 2003. From the data analysis of the first months of 2004, we expect confirmation of this trend.

THE ORGANIZZAZIONE Centro-Sud Trapianti (OCST), created in 1998 and inspired to follow the principles of cooperation, transparency, and respect for regional independence, is organized in 9 regional areas (Abruzzo, Basilicata, Calabria, Campania, Lazio, Molise, Sardinia, Sicily, and Umbria), each referring to a local Regional Transplant Center (CRT). Organs are primarily allocated to meet demands of transplantation centers of each regional area. Emergencies, pediatric grafts, paybacks, and cases where the organs cannot be assigned within the region itself are managed by the Interregional Transplant Center (CIT) of the OCST, located in Rome. The aim of the current study was to report on the impact of the OCST introduction on the harmonization of the regional pre existing entities and on organ donation and transplantation activity during the period of 1999–March 2004.

MATERIALS AND METHODS

This retrospective analysis of organ donors reported to the OCST and of all transplantation performed at its regional centers from October 1998 to March 2004 focused an outcome analysis on donor epidemiological features (age, and gender ratio), causes of death, reasons for discarding an organ, harvesting, and transplantation rates. Donors were divided into 6 groups: Group A (October 1998–December 1999), Group B (January–December 2000), Group C (January–December 2001), Group D (January–December

From the Organizzazione Centro-Sud Trapianti, Rome, Italy.
Address reprint requests to Dr Renzo Pretagostini, Organizzazione Centro Sud Trapianti, Department of Transplantation, II Clinica Chirurgica, Policlinico Umberto I, Viale del Policlinico 155, Rome 00155, Italy. E-mail: repretagostini@tiscalinet.it

Table 1. Evolution of Total Organ Donation Picture 1999–2004

	Group A #203	Group B #292	Group C #503	Group D #516	Group E #582	Group F #176
Donors						
Harvested (%)	116 (57)	125 (43)	189 (37.5)	218 (42)	211 (36)	85 (48)
Multiorgan (%)	87 (43)	97 (33)	140 (28)	160 (31)	167 (28)	75 (42)
Nonharvested (%)	87 (43)	167 (57)	314 (62.5)	298 (58)	371 (64)	91 (52)
Nonharvested donors						
Family opposition (%)	54 (27)	103 (35)	214 (42.5)	196 (38)	241 (41)	62 (35)
Unsuitable (%)	26 (13)	58 (20)	80 (16)	87 (17)	106 (18)	24 (13)
Cardiac arrest (%)	7 (3)	6 (2)	20 (4)	15 (3)	24 (5)	5 (4)
Total	87 (43)	167 (57)	314 (62.5)	298 (58)	371 (64)	91 (52)

2002), Group E (January–December 2003), and Group F (January–March 2004).

RESULTS

From October 1998 to March 2004, the OCST received reports of 2272 potential donors. The number of donors in Group A was 203, in Group B was 292, in Group C was 503, in Group D was 516, in Group E was 582, and in Group F was 176. The referral per million population rate in each group was 8.8, 12.7, 21.8, 22.5, 26.4, and 31.9, respectively. The gender ratio (male: female) in the 6 groups was 2:1, 3:2, 3:2, 3:2, 3:2, and 5:4, respectively. The mean age was 35.9 ± 18 years (median, 35), 47 ± 20.3 years (median, 48), 48.5 ± 19.9 years (median, 51), 48.1 ± 20.2 years (median, 51), 49.3 ± 20 (median, 52), and 50.5 ± 20 (median, 54), respectively in the 6 groups. Strokes accounted for 49%, 56%, 63%, 66%, 66%, and 76% deaths, respectively in groups A, B, C, D, E, and F. Traumas ranged as high as 44%, 38%, 30%, 30%, 28%, and 20%, respectively. Cerebral anoxia was present in 3%, 4%, 3%, 3%, 4%, and 2% and penetrating injuries in 4%, 2%, 4%, 1%, 2%, and 2%, respectively. Harvested, multiorgan, and nonharvested donors (with causes of donor discard) are illustrated in Table 1. Table 2 illustrates transplantation activity in the OCST centers in 1999 compared with 2004.

DISCUSSION

The inception of the OCST and the efforts from central and regional authorities have yielded a significant increase in organ donation and transplantation activity in the region during the period 1999–2003. From the outcome analysis of data from the first 3 months of 2004, we expect confirmation of this trend. The increase is a consequence of the growth in

reported donors from the intensive care units, mainly due to the activity of promotion awareness of organ transplantation and of specific training among medical staff made by the organization.

In particular, this trend resulted in higher numbers in 2002 with a growth of 76% in transplantations, whereas it was lower in 2003 (69%). The number of reported donors grew 12.7% from 2002 to 2003. At the same time, the nonharvested donor rate increased 24.8%, mainly due to an increase in family opposition (38% in 2002 vs 41% in 2003), despite public efforts from central and local authorities to promote organ donation among the people. In contrast, the numbers of unsuitable donor and of cardiac arrests remained quite stable, underlining the quality of intensive care units. To harmonize the regional preexisting entities, the OCST instituted Research Groups constituted with specialists in different fields of medicine. These Research Groups have provided a common medical record of potential donors so as to standardize and simplify information exchange among different areas within the OCST.

During the study period, we observed a steady increase in donor age, which underlined the importance of improving use of marginal organs. For this purpose, Research Groups elaborated guidelines for evaluation of kidney and liver donors older than 60 year of age. A consequence of the increase in donor age was that the number of transplantations performed in the OCST has been greater for heart (+55%), liver (+67.5%), and kidney (+105%) grafts but low for lung transplantations (–48%). A problem linked to the use of older donors is also the major incidence of neoplastic pathology. For this reason, it was mandatory to create a common protocol of screening tests to detect

Table 2. Use of Donor Organs

	1999	2000	2001	2002	2003	2004 Expected Results
Donors-used*	6.6	5.4	8.2	9.9	9.6	15.1
Kidney transplantations	217	213	322	367	337	568
Heart transplantations	40	50	67	75	67	116
Liver transplantations	70	86	133	163	175	316
Pancreas transplantations	0	1	6	11	6	4
Lung transplantations	27	22	21	20	14	8

*Per million population.

eventual neoplasia in organ donors. The OCST has moreover supported and promoted combined, double kidney, split liver, kidney-pancreas, and pancreas-alone transplantations.

In conclusion, the OCST deems it important to establish mutual criteria for the management of waiting lists for organ allocation and for correct identification of the most suitable recipient. Efforts will be made toward implementation of customized programs for each region, which optimize their number of transplantations. A greater focus also will go to the creation of interregional programs aimed at increasing the number of transplantations in “difficult

situations,” for example, hyperimmunized subjects or people with uncommon HLA antigens.¹⁻⁴

REFERENCES

1. Conesa C, Rios Zambudio A, Ramirez P, et al: Influence of different sources of information on attitude toward organ donation: a factor analysis. *Transplant Proc* 36:1245, 2004
2. Matesanz R: Factors that influence the development of an organ donation program. *Transplant Proc* 36:739, 2004
3. Sade RM, Kay N, Pitzer S, et al: Increasing organ donation: a successful new concept. *Transplantation* 74:1142, 2002
4. Hausteil SV, Sellers MT: Factors associated with (un)willingness to be an organ donor: importance of public exposure and knowledge. *Clin Transplant* 18:193, 2004