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Donor organ procurement in the North Italy Transplant program (NITp) in 1994: the beginning of a promising trend?

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Abstract Donor organ procurement is a world-wide problem. In Italy it is particularly so and the reasons for this are investigated. An overall increase in the number of donors has been noted in 1994 and the first 8 months of 1995, and ways of continuing this encouraging trend should be pursued by improvements in education, legislation, and hospital organization.

Key words Donor organ procurement · Education · Legislation · Brain death

Introduction

Italy has suffered in recent years from a chronic shortage of organs for transplantation. The problem was so well known that it even reached the foreign press. On 17 October 1994, Time magazine in an article concerning a young American boy killed in Italy and who became an organ donor, referred to Italy's donor rate as being "one of the lowest" in Europe [1]. Figure 1 shows that the donor rate per million population (pmp) per year in Italy and in the North Italy Transplant program (a transplant organization which has served an area with 18 million inhabitants since 1972) is much lower than the European mean [2]. Organ shortage leads to an accumulation of patients on the waiting list, long waiting times, and a high mortality rate for patients on the heart and liver waiting list who have no alternative treatment to transplantation.

Causes of scanty organ procurement

Public knowledge and its attitude toward transplantation

The health education of the Italian population is far from satisfactory and, in particular, information regarding transplantation is very poor. From a survey carried out by Centro Studi Investimenti Sociali (CENSIS) in the Lazio region in 1992, it emerged that 53.6 % of subjects had scarce knowledge concerning transplantation and 40 % had doubts about brain death [3]. Thus it is not surprising that opposition to organ retrieval by the next of kin is quite high; a study performed in 68 intensive care units (ICUs) in North Italy showed that out of 255 potential donors there was denial of consent from donor families in 74 cases (29 %).

Attitude of mass media in relation to transplantation

The general population's uneasiness concerning transplantation is reflected by the mass media which usually approaches transplantation in three different ways:
1. Events are presented objectively, highlighting technical and scientific content (information).

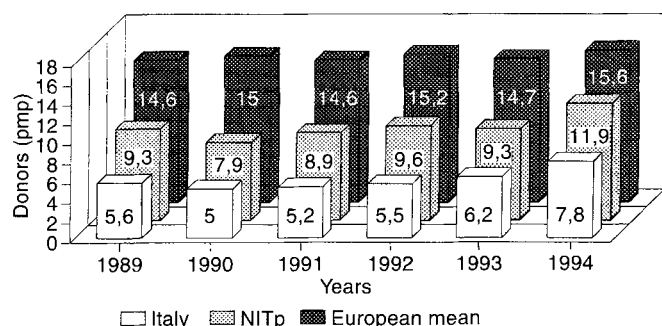


Fig. 1 Donors used (per million population) in Italy and in NITp compared with the European mean

Table 1 NITp. Organ procurement and transplantation activity. Comparison between 1993 and 1994

| Donors/transplants | 1993 | 1994 | Percentage variation |
|--------------------|------|------|----------------------|
| Donors used | 169 | 215 | + 27.2 % |
| Transplants | | | |
| Kidney | 320 | 416 | + 30.0 % |
| Heart | 182 | 208 | + 14.3 % |
| Liver | 168 | 202 | + 20.2 % |

2. Events (and surgeons) are “celebrated” or some aspects are reported incorrectly (misinformation).

3. Untrue and horrifying aspects are emphasized (disinformation).

The latter approach is that which shifts the spotlight to shocking news which is published in the chronicle section of newspapers. In recent years, the mass media have furnished a great amount of confused and contradictory news with particular regard to organ trafficking or the use of organs from patients who could have been saved, and the stories of criminal organizations which kidnap children or young adults to remove their organs. Many of these stories are “metropolitan legends” which contain some elements of modern living but the contents are emphasized and distorted [4]. It can be hypothesized that these stories are an expression of a “primal anxiety” of man regarding transplantation, a field which embraces such frontline topics as brain death and highly technological medical procedures which give patients who would die in the short term a longer life expectancy.

Attitude of health care workers toward transplantation

Misinformation is one of the problems of health workers, who often do not have the opportunity of going into different aspects of organ retrieval and transplantation during their professional life. From a survey carried out in 1994 among 1119 health workers from a large teaching hospital in Verona, with the aim of investigat-

ing how health workers perceived organ donation and transplantation [5], 22.5 % of subjects ignored the meaning of brain death and 35 % believed in the possibility of organ trafficking in Italy.

Attitude of hospitals

For many years, Italian public hospitals run by the National Health System have been financed independently of the services they produced, few pursued efficiency, and most did not have a modern approach to the management of human resources, including the use of incentives for those who make a special effort as is the case for donor organ procurement. It is no surprise that few hospitals were committed to organ procurement, and those which have been active in such programs have done so on a voluntary basis, often facing several organizational problems, such as a low number of ICU beds, a lack of subintensive units, and no doctor present in the ICU ward during night hours. Other organizational difficulties include establishing the medical/legal commission for ascertaining brain death, the absence of a professional figure in charge of managing the organ donor and of coordinating organ retrieval procedures, and the difficulties of access to diagnostic facilities such as computerized tomography and electroencephalography.

Organ procurement and transplantation activity in NITp in 1994 and in the first 8 months of 1995: a turning point?

Compared with 1993, there was a significant increase in the number of donors used in NITp in 1994 (+ 27.2 %) (Table 1), with some fluctuations in the monthly donor rate (Fig. 2). A reduction in the summer months can be seen as opposed to a consistent increase in the last 3 months of the year. News related to transplantation has constantly been in the papers and on television prior to October 1995. In June, during a television talkshow a patient declared that he paid a large amount of money to obtain a transplant, giving the impression that in Italy there is an “organ market”. At the end of the summer, the Minister for the Family declared that some children born in South America were adopted in Italy only to be sold to organ trafficking organizations. There was no proof to support these declarations; nonetheless, the scandal was very harmful for the image of the transplant community and organ procurement dropped dramatically.

At the beginning of October, Nicholas, a young American boy on holiday with his parents in South Italy, was killed by criminals and became an organ donor. This news was widely covered by the media and the whole nation was touched by the family’s decision. The increase in the donor rate following this event has been

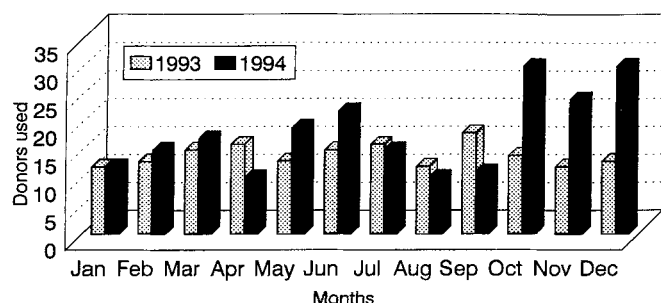


Fig. 2 NITp. Organ procurement, comparison between 1993 and 1994

Table 2 NITp. Organ procurement and transplantation activity. Comparison between the first 8 months of 1994 and 1995

| Donors/Transplants | Jan-Aug 1994 | Jan-Aug 1995 | Percentage variation |
|--------------------|--------------|--------------|----------------------|
| Donors used | 120 | 181 | + 50.8 % |
| Transplants | | | |
| Kidney | 229 | 345 | + 50.6 % |
| Heart | 114 | 174 | + 52.6 % |
| Liver | 113 | 151 | + 33.6 % |

called the "Nicholas effect". We believe that positive and negative news on the mass media only partly explain the 1994 data. Certainly, the brain death law issued in the autumn and the initiatives taken by NITp focusing on organ procurement have played an important role in reversing the trend of organ procurement in our area. In the first 8 months of 1995 the trend in donor rate has been satisfactory (Table 2).

Measures adopted to improve transplantation

Measures adopted at a national level

In December 1993, a law establishing the criteria for brain death was issued (law n. 578 dated 29 December 1993). This is a good law since it unequivocally states that there is only one type of death, which occurs when the brain is totally and irreversibly damaged. The main feature of this law is that the diagnostic criteria are fixed by a decree (DM 582 effective from 19 October 1994) which can be modified more easily than a law. The time period for diagnosis of death in adults is reduced from 12 h (law 644 dated December 1975) to 6 h (for children aged 1–5 years the diagnosis period is 12 h whereas for babies under 1 year it is 24 h); brain death criteria are also applied in the case of brain death secondary to anoxia, which is different from that foreseen by the previous legislation. Finally, the law clearly states that the presence of spinal reflexes has no influence on the diagnosis of brain death.

Measures adopted at a regional level

NITp regions have lately been very active in promoting organ procurement and transplantation. The measures taken have been educational programs in hospitals, the appointment of regional and local transplant coordinators, and the Veneto region has recently approved a law which foresees reimbursement for organ procurement activity.

Measures adopted in NITp

In the past few years, NITp has endeavoured to improve organ donation in three ways. Firstly, much effort has been put into promoting organ procurement in its ICUs. An itinerant commission made up of an ICU doctor and a representative of the Interregional Reference Center has visited the most important ICUs in our area to become acquainted with the local problems which could hinder organ procurement. Where possible, a solution was looked for together with ICU doctors and the hospital's medical director. Secondly an Italian version of the European Donor Hospital Educational Program (EDHEP) has been prepared and implemented in some of our hospitals. Thirdly, a psychology unit has been established with two objectives: on the one hand to assist donor families in overcoming psychological problems related to a "complicated grieving process" and on the other hand, to help intensive care workers with asking families for consent [6, 7].

Discussion

It seems clear that a new and more effective system for health education must be devised. The university together with the schooling system and the relevant scientific societies should coordinate their efforts and come up with clear information about organ donation and transplantation, and this should be transmitted to the public in proper ways; this, however, is a difficult and expensive task out of our reach.

Educational programs should continually address health workers which deal with transplantation, and in this regard there are many models which one can choose from, such as the already mentioned EDHEP program, the Transplant Coordinator Management courses organized by Organizacion Nacional de Transplantes, or the training program for neurosurgeons and for medical and nursing students of the North American United Network of Organ Sharing. All of the above-mentioned educational programs use effective instruments such as videos, interactive computer programs, and simulations of real situations encountered in the hospital setting.

To improve the efficiency and quality of Italian hospitals, laws n. 502 and 517 issued in 1992 and 1993, respectively, foresee the introduction in public hospitals of mechanisms resembling those of private management. From 1 January 1995 hospitals should be financed with a limited fixed amount by the region and for the rest they should be financed according to the services rendered. It is unclear whether these measures will be successful, since the Italian hospitals have become corporations but have not been given the necessary instruments to act as such; for instance, decisions such as the number of staff assigned to each ward are still taken by the Central Health Authority.

So it is our belief that for the future, two very important points must be solved; firstly, the hospital corporations must be allowed to become real enterprises and, secondly, organ procurement procedures must be reimbursed and assigned a high value so as to encourage hospitals and the personnel involved to identify all possible cadaver organ donors. When these two

aspects are overcome, hospitals will be able to reorganize their ICUs as they deem necessary, implement effective training for its personnel, and nominate local transplant coordinators (LTC) which have been recognized by Spain [8, 9] and other countries as being the real "engine" of organ procurement programs. The LTC's job should be that of stimulating organ procurement, devising education programs in the hospital and, whenever a donor becomes available, the LTC should be in charge of organizing the donor operation. To be effective, it is mandatory that LTCs be officially recognized by the health authorities and backed up by a budget which covers some expenses and provides incentives to the teams more closely involved in organ procurement.

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References

1. Time Magazine (1994) Gift from the grave. A grieving family's generosity stirs hearts
2. Council of Europe 1994 Transplant 6: 271-278
3. Centro Studi Investimenti Sociali 1992 La donazione degli organi nel Lazio. February
4. Comazzi AM, Clerici CA (1996) La trapiantologia attraverso i mass media (in press)
5. Boschiero L, Licata C, Procaccio F (1996) Indagine sulla percezione della morte cerebrale e donazione degli organi tra il personale sanitario degli Ospedali di Verona (in press)
6. Comazzi AM, La Spina F (1994) Umanità e scienza in aiuto ai parenti del donatore. Not Brevi Policlinico 5: 4-6
7. Matesanz R, Miranda B, Felipe C (1994) Organ procurement in Spain: Impact of transplant coordination. Clin Transplant 8: 281-286
8. Matesanz R (1993) Organ procurement in Spain: The importance of a transplant coordinating network. Transplant Proc 25: 3132-3135
9. Matesanz R, Miranda B (1995) Coordinación y Trasplantes. El modelo español. Grupo Aula medica S. A., Madrid