

# CADAVER DONATION : A RETROSPECTIVE REVIEW AT THE KING CHULALONGKORN MEMORIAL HOSPITAL, BANGKOK

Sithiporn Agthong<sup>1</sup> and Viroj Wiwanitkit<sup>2</sup>

<sup>1</sup>Department of Anatomy, Faculty of Medicine, Chulalongkorn University;

<sup>2</sup>Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

**Abstract.** Cadavers are a crucial resource for medical education. Currently, donation is the only means of obtaining cadavers for use in Thai medical schools. Some traditional beliefs result in an insufficient number of donated cadavers. This shortage of cadavers may affect the quality of medical training. We report on the present situation regarding the quantity and usage of donated cadavers in the King Chulalongkorn Memorial Hospital, Bangkok, during the eight years between 1993 and 2000. During this period, 19,674 cadavers became available ( $2,459.3 \pm 1,243.7$  cadavers/year) as the result of advanced donation. However, only 619 cadavers (3.1 %) were actually obtained. Poor preservation and delayed delivery contributed to the underutilization; furthermore, some cadavers were reclaimed. In order to increase the number of cadavers and maintain the quality of medical education, the appropriateness and importance of cadaver donation should be emphasized to the public.

## INTRODUCTION

It has long been generally accepted that cadavers are essential for the training of medical personnel. Aside from their being dissected in anatomy classes, cadavers can be used for practicing surgical skills and developing new surgical techniques (Bunprasert, 1998). We have shown the potential of a cadaver as a more realistic aid to venipuncture training (Agthong and Wiwanitkit, 2000). Due to increased usage, more cadavers are needed.

Although cadavers can be obtained by a variety of different legal methods, the main source is donation. The number of donors is far lower than that required, unfortunately. A lack of cadavers poses a serious problem to future medical education.

We report on an 8-year review of the situation regarding the demand and usage of cadavers in one of the most important donation centers in Thailand, the King Chulalongkorn Memorial Hospital, Bangkok, which works in co-operation with Thai Red Cross Society and the Faculty of Medicine, Chulalongkorn University. Related problems are discussed and possible solutions are considered.

## MATERIALS AND METHODS

The data from the Cadaver Donation Center, King Chulalongkorn Memorial Hospital, were obtained for the period 1993-2000. These data were retrospectively reviewed. Descriptive statistics were used for analysis.

---

Correspondence: Viroj Wiwanitkit, Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand.

Relative percentage was calculated where appropriate.

## RESULTS

During the study period, 19,674 patients ( $2,459.3 \pm 1,243.7$  patients/year) expressed a desire to donate their bodies to medical science (Table 1). However, only 619 (3.1%) cadavers were received at the center. Twenty-two cadavers were lost to poor preservation during transport; four were returned, on request to the relatives. There were 593 cadavers left for use. Most of these (519; 87.5%) were used for medical and paramedical student training. In contrast, only 74 cadavers (12.5%) were used for medical research and surgical training. It is also worth noting that the number of cadavers used for surgical practice and research markedly increased after the foundation of a surgical training center in the Faculty of Medicine, Chulalongkorn University.

## DISCUSSION

There are many problems that account for the insufficient number of donated cadaver. The small number of cadavers received compared with advanced or expected donation is the most obvious, as shown in Table 1. Several reasons have been suggested (Agthong, 1999). The most important one is the attitude of patients or families towards body or organ donation. Some donors, for example, fear mutilation (Verble and Worth, 1999): this is supported by the realization that a similar problem is faced by blood donors (Wiwanitkit, 2000). Although those who were willing to donate their bodies informed the donation center, they might have changed their minds later or might have been influenced by the views of their relatives.

Table 1  
Cadaver donation and usage from 1993 to 2000.

Year	Expected donation (n)	Cadavers received (n)	Cadavers unavailable for use (n)	Usage <sup>a</sup> (n)		
				Anatomy training		Research and surgical training
				Medical students	Other students	
1993	1,305	55	-	38	17	-
1994	1,450	77	1	52	23	1
1995	1,470	68	-	43	24	1
1996	1,303	81	1	54	26	-
1997	3,048	86	-	49	34	3 <sup>c</sup>
1998	2,881	105	4	64	5	32
1999	4,422	63	8	45	- <sup>b</sup>	10
2000	3,795	84	12	45	- <sup>b</sup>	27
Total	19,674	619	26	390	129	74

<sup>a</sup> Cadavers were usually used in subsequent years. As a result, cadavers received in any one year might be used in another.

<sup>b</sup> Change of cadaver supply source to another center.

<sup>c</sup> From 1997, a surgical training center was established which aimed to promote the use of cadavers in surgical training and research.

Alternatively, they may have donated their bodies to other centers, although this is unlikely, given that those centers also encounter the problem of insufficient numbers of cadavers. Some cadavers were returned to the relatives on request. In order to alleviate this attitude, public understanding of the appropriateness and importance of cadaver donation must be enhanced. Attempts to raise awareness by all means of people's attitudes towards body donation are essential.

The second cause of a relative lack of cadavers is their increasing utilization in surgical training and research. As seen in Table 1, the number of cadavers used for these purposes has been markedly higher since the discovery of a new method of cadaver preservation and the foundation of a surgical training center by Bunprasert (1998). This increase in cadaver utilization aggravates the shortage of cadavers and might affect the quality of medical training and development in the near future.

The unnecessary loss of cadavers is the third cause. As shown in Table 1, the number of spoilt cadavers has increased dramatically in the last few years, mainly because of poor preservation as the result of either prolonged transportation or late notification. This reflects a lack of co-ordination between centers, at which cadavers can be kept in a suitable condition; it also suggests shortcomings in the delivery services provided by the donation centers. Co-operation between centers and the establishment of small

preservation centers are of great importance.

In conclusion, more cadavers are needed to maintain the quality of medical education and serve the growing requirements of surgical training and research. However, due to attitude towards body donation and unnecessary loss, the number of cadavers received during the past 8 years has remained relatively low. We recommend that public education be enhanced and the establishment of inter-center co-operation be emphasized.

#### REFERENCES

- Agthong S. Current situation and problems of cadaver donation. *Chula Med J* 1999;43:451-5.
- Agthong S, Wiwanitkit V. Cadaver arm: a new model for venipuncture training. *Chula Med J* 2000;44 (suppl): 48.
- Bunprasert T. The new potential of surgical training: surgical training center. *Chula Med J* 1998;42:413-5.
- Verble M, Worth J. Dealing with the fear of mutilation in the donation discussion. *J Transpl Coord* 1999; 9:54-6.
- Wiwanitkit V. A study on attitude towards blood donation among people in a rural district, Thailand. *Southeast Asian J Trop Med Public Health* 2000; 31:609-11.