

## Public awareness of organ donation

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A telephone survey of public attitudes toward organ donation and transplantation was conducted in a community in southwestern Ontario. The subjects were selected at random; the response rate was 57%. Of the 50 respondents 62% stated that they had signed the organ donor card accompanying their driver's licence. These respondents were more likely than those who did not sign it to have discussed organ donation with their families. At least 80% of the respondents said they would agree to donate their organs and those of their next-of-kin, and 80% said that the organ donor card should be considered a legal document. Organ transplantation was regarded by all but one respondent as an acceptable medical procedure. Also discussed were concerns about organ donation and possible strategies to improve the availability of organs for transplantation.

**Enquête téléphonique dans une ville du sud-ouest de l'Ontario sur les opinions de la population quant au don et à la greffe d'organes. Parmi les sujets choisis au hasard 57% répondent. Des 50 répondants 62% disent avoir signé la carte de consentement qui accompagne le permis de conduire. Ceux qui ont signé, plus souvent que ceux qui n'ont pas signé, avaient parlé du don d'organes avec leur famille. Plus de 80% des répon-**

**dants consentiraient à donner leurs organes et ceux de leur plus proche parent. Pour 80% des répondants la carte de consentement devrait avoir force de loi. Tous, à l'exception d'un seul, considèrent que la greffe d'organes est une bonne chose du point de vue médical. On discute aussi de certaines inquiétudes au sujet du don d'organes et des moyens d'augmenter la disponibilité des organes pour fins de greffe.**

The public's negative attitude toward organ donation is consistently cited as the major factor in the current shortage of organs for transplantation.<sup>1-3</sup> It has been estimated that if 50% of possible donor situations actually resulted in donations such a shortage would not exist.<sup>4</sup>

In general, public opinion surveys have found that while most people have a positive attitude toward organ donation and transplantation this seldom results in concrete action.<sup>2,3</sup> A 1983 survey by the Kidney Foundation of Canada found that while 90% of the respondents agreed with the concept of organ donation, only 20% had signed a donor card.<sup>4</sup> A 1984 study in Ontario had similar findings: 89.1% of the respondents had heard of organ donor cards, but only 25.5% stated that they had signed one.<sup>1</sup> A comparison of the results from Gallup polls in 1983<sup>1</sup> and 1987 (*Toronto Star*, Mar. 16, 1987: page A2) showed an increase, from 21% to 25%, in the proportion of people who had signed an organ donor card. The results of a survey on public attitudes, commissioned by the Ontario Ministry of Health's task force on kidney donation, indicated a resistance to expressing support for organ donation and transplantation by signing organ donor cards.<sup>5</sup> In that survey 60 individuals —

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people who had signed an organ donor card, people who had not signed a card and parents of children who had their driver's licence — underwent a 2-hour interview. To our knowledge, no population-based studies have been done in Canada.

We conducted a small survey to ascertain public attitudes toward organ donation and the bases for these attitudes and thus to identify predictors of attitude and behaviour.

## Methods

We developed a questionnaire based on the literature to date and conducted a telephone survey in a city of 80 000 people in southern Ontario. While most of the questions had multiple-choice answers, several were open-ended so as to identify issues that were not suggested by the literature.

The subjects were selected from listed telephone numbers by the use of a table of random numbers. Only one person, aged 18 years or older, per household was selected because of the expected correlation in responses among people in the same household. If there was no answer when the call was placed, the interviewer was instructed to try the number two more times over the next 2 weeks before removing it from the list. Those contacted were asked if, for purposes of research on kidney transplantation, they would be willing to answer questions on medical procedures.

## Results

Of the 88 people contacted by telephone 50 (57%) were willing to be questioned. Their demographic characteristics are shown in Table I. There were no significant differences between the respondents who stated that they had signed the organ donor card accompanying their driver's licence and those who had not. However, more of the respondents who had signed the organ donor card (20 of 31) than of those who had not signed it (4 of 14) had discussed organ donation with their families ( $p = 0.027$ ).

Organ transplantation was viewed as accepted medical treatment by all but one of the respondents (Table II). At least 80% of the respondents said they would agree to organ donation for themselves and their next-of-kin. Also, 80% felt that the organ donor card should be a legal document whose provisions should not be usurped by the next-of-kin.

Newspapers or magazines and television were cited by 90% of the respondents as being the primary sources of information about organ transplantation. The driver's licence itself was cited by 32%. The two most frequently cited determinants of whether the respondents would agree to organ donation were altruism (cited by 40%) and the

knowledge that a friend or relative needed an organ (cited by 32%).

There were several specific concerns about organ donation and transplantation, the two most common being that financial status might determine who would receive an organ transplant (cited by 16%) and that the donated organ might be of inferior quality or from a carrier of human immunodeficiency virus (cited by 10%). We did not find a differential reaction to the type of organ donation; that is, the respondents were as support-

Table I — Demographic characteristics of respondents and number who had signed an organ donor card

Characteristic*	No. of respondents	No. who had signed an organ donor card†
Sex		
Male	19	14
Female	30	16 (25)
Age, yr		
< 40	24	17 (23)
≥ 40	23	14 (19)
Religious preference		
Protestant	31	18 (28)
Catholic	10	4 (8)
None	9	9
Level of education		
Less than high school	13	6 (10)
High school, some college or university	21	15 (19)
College or university graduate	15	10
Marital status		
Married	35	19 (31)
Never married	13	11
Widowed	2	1 (1)

\*Four of the respondents did not state their sex, age or level of education.

†Numbers in parenthesis indicate number of people answering the question about organ donor cards if different from the total number of respondents.

Table II — Respondents' answers to questions on organ donation and transplantation

Response	No. (and %) of respondents
Organ transplantation is an acceptable form of medical treatment	49 (98)
Want next-of-kin to give consent for donation of organs	42 (84)
Willing to give consent for donation of organs from next-of-kin	40 (80)
Has discussed organ donation with family	27 (54)
A signed donor card should be a legal document whose provisions should not be usurped by next-of-kin	40 (80)
Familiar with the term brain death	41 (82)
Acceptable that a person should be maintained on a life support system for organ donation	38 (76)
A central registry should be established as organs become available	49 (98)

ive of kidney transplantation as they were of heart or other organ transplantation. The respondents who stated that it was acceptable to maintain a person on a life support system for purposes of organ donation (38 of 50) were also queried on what would be an acceptable length of time. Surprisingly, most (27 of 38) said that 48 hours or more was acceptable. Finally, 12 of the 14 respondents who said that they had not signed the organ donor card said that they were willing to do so.

## Discussion

We have demonstrated the feasibility of a random population-based survey of public attitudes toward organ donation. The results give some insight into factors affecting behaviour. Since 62% of the respondents had signed a donor card, and since the response rate was 57%, we estimated that at least 35% of the population has signed a donor card. Our findings on the factors that influence behaviour are necessarily restricted, however, to the people who responded to the survey.

Further research into the issues and concerns about organ donation and transplantation is essential for the development of public education strategies. The disparity between the numbers of respondents who were willing to donate organs and of those who had already signed a donor card suggests that the solution to the current shortage of organs for transplantation is not solely an increase in public acceptance of the procedure. The goal may be to ensure that people who are willing to sign an organ donor card do so and make their intentions known to their families. Approximately one-third of the respondents cited the driver's licence as a source of information on organ donation. Thus, the donor card should receive more attention in public education campaigns. Because there is support for making the organ donor card a legal document, a central registry of names of people who have given consent might also be considered.

## References

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**Actions:** Hydralazine hydrochloride exerts its hypotensive action by reducing vascular resistance through direct relaxation of vascular smooth muscle.

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APRESOLINE Parenteral: Severe hypertension when the drug cannot be given orally or when there is an urgent need to lower blood pressure (e.g. toxemia of pregnancy or acute glomerulonephritis). It should be used with caution in patients with cerebral vascular accidents.

**Contraindications:** Hypersensitivity to hydralazine coronary artery disease, mitral valvular rheumatic heart disease, and acute dissecting aneurysm of the aorta.

**Warnings:** Hydralazine may produce in a few patients a clinical picture simulating systemic lupus erythematosus, in such cases treatment should be discontinued immediately. Long-term treatment with adrenocorticosteroids may be necessary. Complete blood counts, L.E. cell preparations, and antinuclear antibody titer determinations are indicated before and periodically during prolonged therapy with hydralazine and if patient develops arthralgia, fever, chest pain, continued malaise or other unexplained signs or symptoms. If the results of these tests are abnormal, treatment should be discontinued.

**Usage in Pregnancy**

Animal studies indicate that high doses of hydralazine are teratogenic. Although there is no positive evidence of adverse effects on the human fetus, hydralazine should be used during pregnancy only if the benefit clearly justifies the potential risk to the fetus.

**Precautions:** Caution is advised in patients with suspected coronary-artery disease, as it may precipitate angina pectoris or congestive heart failure, and it has been implicated in the production of myocardial infarction. The "hyperdynamic" circulation caused by APRESOLINE may accentuate specific cardiovascular inadequacies, e.g. may increase pulmonary artery pressure in patients with mitral valvular disease.

May reduce the pressor responses to epinephrine. Postural hypotension may result.

Use with caution in patients with cerebral vascular accidents and in patients with advanced renal damage. Peripheral neuritis has been observed and published evidence suggests an antipyridoxine effect and the addition of pyridoxine to the regimen if symptoms develop.

Blood dyscrasias consisting of reduction in hemoglobin and red cell count, leukopenia, agranulocytosis and purpura have been reported. In such cases the drug should be withdrawn. Periodic blood counts are advised during therapy. MAO inhibitors should be used with caution in patients receiving hydralazine. Slow acetylators should probably receive no more than 200 mg of APRESOLINE per day. When a higher dose is contemplated, and, whenever possible, it may be advisable to determine the patient's acetylation phenotype.

**Adverse Reactions:** Within the first day or two: headache, palpitations, tachycardia, anorexia, nausea, vomiting, diarrhea, and angina pectoris. They are usually reversible when dosage is reduced or can be prevented or minimized by administering reserpine or a beta-blocker together with hydralazine.

Less Frequent: nasal congestion; flushing; lacrimation; conjunctivitis; peripheral neuritis; evidenced by paresthesias, numbness, and tingling; edema; dizziness; tremors; muscle cramps; psychotic reactions characterized by depression, disorientation, or anxiety; hypersensitivity (including rash, urticaria, pruritus, fever, chills, arthralgia, eosinophilia, and, rarely hepatitis); constipation; difficulty in micturition; dyspnea; paralytic ileus; lymphadenopathy; splenomegaly; blood dyscrasias, consisting of reduction in hemoglobin and red cell count, leukopenia, agranulocytosis, thrombocytopenia with or without purpura; hypotension; paradoxical pressor response.

**Late Adverse Reactions:** Long-term administration at relatively high doses may produce an acute rheumatoid state. When fully developed a syndrome resembling disseminated lupus erythematosus occurs. The frequency of these untoward effects increases with dosage and duration of exposure to the drug and is higher in slow than in fast acetylators. Antinuclear antibody and positive L.E.-cell tests occur.

**Symptoms and Treatment of Overdosage:** Symptoms: hypotension, tachycardia, headache, generalized skin flushing, myocardial ischemia and cardiac arrhythmia can develop. Profound shock can occur in severe overdosage.

**Treatment:** No known specific antidote. Evacuate gastric content, taking adequate precautions against aspiration and for protection of the airway; if general conditions permit, activated charcoal slurry is instilled. These procedures may have to be omitted or carried out after cardiovascular status has been stabilized, since they might precipitate cardiac arrhythmias or increase the depth of shock.

Support of the cardiovascular system is of primary importance. Shock should be treated with volume expanders without resorting to use of vasopressors, if possible.

If a vasopressor is required, a type that is least likely to precipitate or aggravate cardiac arrhythmia should be used, and the E.C.G. should be monitored while they are being administered.

Digitalization may be necessary. Renal function must be monitored and supported as required.

No experience has been reported with extracorporeal or peritoneal dialysis.

**Dosage and Administration:** Adjust dosage according to individual blood pressure response.

Orally: Initial: 10 mg 4 times daily for the first 2 to 4 days, 25 mg 4 times daily for the remainder of the first week, 50 mg 4 times daily for the second and subsequent weeks of treatment.

Maintenance: adjust dosage to lowest effective levels. Following titration, some patients may be maintained on a twice daily schedule.

Usual maximum daily dose is 200 mg, up to 300 mg daily may be required in some patients. In such cases a lower dosage of APRESOLINE combined with a thiazide, reserpine or both, or with a beta-adrenergic-blocking agent may be considered. When combining therapy, individual titration is essential to ensure that the lowest possible therapeutic dose of each drug is administered.

Parenterally: patients should be hospitalized. Usual dose is 20-40 mg I.M. or by slow I.V. injection or I.V. drip, repeated as necessary. Patients with marked renal damage may require a lower dosage.

For I.V. drip, the ampoule(s) should be added to 5% sorbitol solution, physiological saline or Ringer solution; glucose solution is not suitable for this purpose. Blood pressure levels should be monitored. It may begin to fall within a few minutes after injection, with an average maximal decrease occurring in 10 to 80 minutes. In cases with a previously existing increased intracranial pressure, lowering the blood pressure may increase cerebral ischemia.

Most patients can be transferred to oral APRESOLINE within 24 to 48 hours.

**Availability:** Tablets of 10 mg: yellow, uncoated, biconvex, scored, and imprinted "FA" on one side and "CIBA" on the other.

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Tablets of 50 mg: pink, coated, printed "HG" on one side and "CIBA" on the other.

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