Effect of a Legal Initiative on Deceased- and Living-Donor Kidney Transplantation in Israel

T. Ashkenazi, R. Rahamimov, M.D. Elhalel, J. Cohen, and E. Mor

ABSTRACT

The severe organ shortage in Israel has prompted many patients to undergo kidney transplantation abroad. In May 2008, the Israeli Knesset approved the Israel Transplant Law prohibiting organ trade and disallowing health insurers to reimburse the cost of illegal transplantation abroad. The aim of this study was to assess the initial effect of the law on kidney transplantations inside and outside the country. The number of kidney transplantations performed inside and outside Israel was compared between the 3-year periods before and after implementation of the transplant law (2006–2008 and 2009–2011). Further analysis compared the number of deceased-donor and live-donor transplantations performed in Israel during the same periods. The results showed that the number of transplantations performed abroad dropped significantly, from a median of 143 per year during 2006–2008 to <45 per year during 2009–2011. There was a parallel increase in the number of kidney transplantations from living donors, from a median of 56 transplants per year in 2006–2008 to 78 per year in 2008–2011, with a peak of 117 transplants in 2011. In conclusion, the Israel Transplant Law has dramatically affected kidney transplantation practices in Israel by reducing transplantation tourism and increasing living-donor kidney transplantations.

In Israel, >700 patients are listed for kidney transplantation, but only about 150 undergo transplantation each year. The deceased-donation rate has been stagnant for many years, at 8–10 donors per million population per year. The gap between supply and demand for organs led to a steady increase in transplant tourism from the late 1990s through the early 2000s. It was further spurred by the decision of health insurers to reimburse the costs accrued for transplantation abroad.

Transplant tourism has long been condemned by the World Health Organization because it harms poor and vulnerable populations. It also places patients at risk when they return home for posttransplantation care, because they are not known to the ill prepared local team. Our experience has shown, in accordance with several published reports, that transplantations performed abroad are associated with a higher incidence of posttransplantation complications as well as lower graft and patient survivals.1

Prompted by these considerations, in April 2008 at a summit convened in Istanbul, transplantation professionals and ethicists from around the world issued the Istanbul Declaration, stating that transplant commercialism should be prohibited.2 The declaration sought to motivate governments and authorities in target countries (such as the Philippines, China, and Pakistan) to close their doors to medical tourists.3 One month later, the Israeli government passed the Israel Transplant Law, which had been in preparation for >5 years. The law explicitly bans the sale and trafficking of organs and prohibits health insurance companies from reimbursing clients for living-donor transplantations performed abroad. At the same time, it entitles donors to receive compensation for loss of earnings and refunds for any necessary rehabilitation services after donation and psychologic consultations, as well as a 5-year reimbursement for health and life insurance.

From the Israel Transplant Center (T.A., M.D.E., J.C.), Ministry of Health, Jerusalem; Department of Transplantation (R.R., E.M.) and Intensive Care Unit (J.C.), Rabin Medical Center, Bellinson Hospital, Petach Tikva, affiliated with Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv; and Department of Nephrology (M.D.E.), Hadassah Medical Center, Hebrew University, Jerusalem, Israel.

Address reprint requests to Prof Eytan Mor, Department of Transplantation, Rabin Medical Center, Bellinson Hospital, Petach Tikva, Israel 49100. E-mail: emor@clalit.org.il

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The aim of the present study was to examine the impact of the new law on kidney transplantation activity and living-kidney donations in Israel.

METHODS

The number of kidney transplants performed in Israel and outside the country was compared between the 3-year periods before and after implementation of the law (2006–2008 vs 2009–2011). The year 2008 was included in the first (pre-law) period on the assumption that it represented a transitional interval to practical implementation of the law. The number of transplantations performed abroad was determined on the basis of insurance claims for reimbursement and medical records of patients who attended local transplant clinics for follow-up. The number of transplantations in Israel was determined by a search of the Israel Transplant Registry for deceased- and living-donor kidney transplantations performed within the 6 years covered by the study. We calculated the median number of transplants per period as well as the change along the whole 6 years with the use of the $R^2$ value of the linear slope.

RESULTS

The number of transplantations performed abroad dropped considerably, from a median of 143 per year in 2006–2008 to 110 in 2009–2011 after implementation of the law (Table 1). The ratio of transplantations performed in Israel to transplantations performed abroad increased in a linear fashion across the 6 years, from 0.91 to 5.47 ($R^2 = 0.89$ for transplantations abroad; $R^2 = 0.515$ for transplantations in Israel). There was a parallel increase in the number of kidney transplantation from living donors, from a median of 56 transplants per year in 2006–2008 to 78 transplants per year in 2009–2011 ($R^2 = 0.078$), with a peak of 117 transplants in 2011 (Fig 1). No change was found in the number of kidney transplants from deceased donors ($R^2 = 0.052$), except for a peak of 123 transplants in 2011.

DISCUSSION

The present study shows that between 2006–2008 and 2009–2011 there was a marked decline in the number of patients traveling abroad for kidney transplantation, accompanied by an opposite trend of an increasing number of patients undergoing living-donor kidney transplantation in Israel. We largely attribute this dramatic change in transplantation activity to the global initiative to ban transplant tourism and passage of the 2008 Israel Transplant law. It is particularly noteworthy that to encourage living donation of organs and increase compliance, Israeli lawmakers included a clause ensuring donors of reimbursement for loss of income, loss of eligibility for health and life insurance, and postdonation care. Thus, although the increase in local transplantation activity may not fully compensate for the overall activity before the law came into effect, it adheres to the goal of the Istanbul Declaration that countries become self-sufficient in organ donation to the extent possible.

Another factor that may have contributed to the increase in living-donor kidney transplantation in recent years is the introduction of new ways to extend the donor pool, such as ABO-incompatible kidney transplantation and worldwide pair-exchange programs.

In summary, the new Israel Transplant Law appears to have considerably limited transplant tourism in Israel and encourages living-organ donation. Further laws and regulations are needed to promote ethical practices in organ transplantation on both a national and an international basis.

### Table 1. Annual Number of Patients Who Underwent Kidney Transplantation in Israel and Abroad in 2006–2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Transplantation in Israel</th>
<th>Transplantation Abroad</th>
<th>Ratio of Transplantations in Israel/Abroad</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>141</td>
<td>155</td>
<td>0.91</td>
</tr>
<tr>
<td>2007</td>
<td>127</td>
<td>143</td>
<td>0.89</td>
</tr>
<tr>
<td>2008</td>
<td>157</td>
<td>89</td>
<td>1.76</td>
</tr>
<tr>
<td>2009</td>
<td>152</td>
<td>55</td>
<td>2.76</td>
</tr>
<tr>
<td>2010</td>
<td>145</td>
<td>40</td>
<td>3.63</td>
</tr>
<tr>
<td>2011</td>
<td>246</td>
<td>45</td>
<td>5.47</td>
</tr>
</tbody>
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REFERENCES