

## Commentary: Not reimbursing islet transplantation creates discrimination against patients with type 1 diabetes

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**Keywords:** Islet transplantation, Health care coverage, Indications, Discrimination.

### ABSTRACT

**In this commentary reviewing the activity of the University of Geneva islet transplantation program, the author argues that health care coverage of the procedure will stop discrimination against a subset of patients with type 1 diabetes in need of beta-cell replacement but unfit to receive a whole pancreas transplant.**

The University of Geneva created its islet isolation laboratory in 1991 and performed its first allogeneic islet transplant in 1994, in a patient suffering from diabetes secondary to cystic fibrosis and who received a combined islet-lung transplant. This patient enjoyed a few years of insulin-independence and is still alive with a functional lung transplant.

Over the next 5 years, several patients with type 1 diabetes received islet-after-kidney (IAK) or simultaneous islet-kidney (SIK) grafts, one of them becoming the first patient ever to enjoy insulin independence for more than 10 years, with perfect glycemetic control.

The success of the Geneva program, led to the creation of the Swiss-French GRAGIL network. This Consortium associated initially 4 French universities with Geneva with the concept to share a pool of patients candidates for an islet transplant, a pool of organ donors and a centralized islet isolation facility. The first transplant with « remotely » isolated islets was performed in 1999 in Grenoble, France, and the GRAGIL program has continued to develop since then, 5 additional institutions having joined the network in the following years.

The first patients suffering from what was then known as "brittle diabetes" were transplanted with islet transplants alone (ITA) in 2002, in the wake

of the publication of the seminal article from the University of Alberta. Since that date, we have transplanted >250 patients who have received >350 islet grafts, in a large variety of indications and modalities, beyond the classic ITAs, IAKs and SIKs. Notably, cystic fibrosis patients have received islet grafts simultaneously with or after a lung transplant, or simultaneously with a liver transplant.

This activity was made possible in Switzerland thanks to the combined efforts of two academic institutions involved in islet transplantation (Universities of Geneva and Zurich) and of Swisstransplant, the national organ allocation agency. A formal request was filed in 2009, and health care coverage for all modalities of islet transplantation was officially inscribed in July 2010, in the federal ordinance of mandatory coverage for health care procedures<sup>1</sup>.

These developments, as well as the completion of two prospective randomized trials<sup>2,3</sup>, have compelled the French health authorities to put the issue of reimbursement of islet of Langerhans transplantation by the health care system on their priority agenda for 2019. It is likely that a positive decision will come in force in 2020.

This acknowledges the fact that islet transplantation is a complementary modality to the reimbursed whole pancreas transplantation. Both procedures address different needs for different subsets of patients. While islet transplantation offers a highly efficient and minimally invasive approach to patients with type 1 diabetes and problematic hypoglycemia, it can also offer good glycemetic control to uremic type 1 patients who would be candidates for a pancreas simultaneously with or after a kidney transplant, but who are deemed too frail or with a too high cardio-vascular operative risk for this high-risk procedure. These considerations are summarized in a recent position paper written by French and Swiss physicians and surgeons<sup>4</sup>.

In countries where the procedure is not covered by the health care system, the lack of access to islet transplantation amounts to discrimination against patients with type 1 diabetes in need of beta-cell replacement but who are not adequate candidates for whole pancreas transplantation.

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