

Research Project

Swiss Transplant Cohort Study

Third-party funded project

Project title Swiss Transplant Cohort Study

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The Swiss Transplant Cohort Study (STCS) is a prospective open multicentre cohort study of all solid organ transplant (SOT) recipients in Switzerland. The project was initiated in 2007 and started to actively enrol patients in May 2008. The project has been funded, among others, by the SNSF as the core funding agency and currently stays in its 4th funding period. The STCS has evolved into the key tool of transplantation outcome research in Switzerland and has gained rapid international recognition due to the high granularity of data and systematic sampling, resulting in a remarkable scientific output. The key strength that made the STCS a prominent research platform is that the leading national experts from various disciplines collaborate under one roof. Over the last years, the number of scientific projects conducted within the STCS network was continuously increasing, with the 100th project approved by the STCS Scientific committee in 2016. Currently, 41 publications appeared in peer-reviewed scientific journals. Transplant infectious diseases continued to be one of the key areas of interest with a particular track record of critical issues in CMV infections. New areas have emerged, such as airway microbiome assessments in lung transplant recipients, T-cell response studies of BK virus infections in renal transplant recipients or genetic host factors of various infectious diseases phenotypes. Since 2012, the STCS collects antibiotic drug resistance data and first results are expected in 2017. Also recently, the genetic dataset has been enlarged to 3000 patients with genome-wide data and 10 published genetic studies of various phenotypes. The Psychosocial Interest Group (PISG) presented novel studies on body weight evolution, the influence of drug adherence and on workability after renal transplantation. Multiple national and international partners collaborate with the STCS for knowledge- and data exchange, resulting in high-ranked publications. A new level will be achieved with the inter-cohort collaboration with the Danish Persimune cohort and the creation of a metacohort with a common research portfolio. The backbone of the STCS is the unique data structure that allows reflecting every transplant type and the monitoring of even more complicated follow-up scenarios. The data involves clinical -, organ-specific -, laboratory -, psychosocial and behavioural -, genetic and infectious disease contents prospectively collected on a long-term schedule. In parallel, bio-banking of plasma, cell and DNA samples takes place at 0 - 6 - 12 months. Moreover, the STCS is legally mandated to keep a limited-registry of non-consenting patients. By the end of 2016, the STCS centres enrolled 4023 patients with 4187 transplantations, and a total of 4392 transplanted organs. During a maximum follow-up of nearly 9 years, 545 patients died (13.5%) and only 42 patients were lost to follow-up (1%). 93% of all Swiss transplant recipients provided written informed consent to the full STCS datasets, and 99% of consenting patients contributed to the STCS bio-bank. The STCS publishes comprehensive reports for the public and key federal institutions, such as the Federal Office of Public Health, UniMedSuisse and the Swiss Highly Specialized Medicine Board. In

2017, clinical transplant experts conducted in-depth reviews of all datasets and defined the necessary adaptations for the next upgrade (STCS generation 3). Furthermore the genetic working group was created to coordinate funding of extended genotyping and regulate the further use of genetic data. By May 2017, 76 persons were working for the STCS corresponding to 23.8 full-time equivalents being financed by SNF, third party, and own funds. For the next funding period, the STCS will face a number of significant challenges. Patients will be involved more closely to specify their needs and integrate their priorities. In addition to the two randomized trials ongoing and in preparation, additional trials are planned to improve the management of infectious complications post-transplant. The immunological datasets need an update to enable high-quality immunological studies. The current data model will expand towards an interoperability platform to link hospital routine care- and lab data from the centres using the standards proposed by the Swiss Personalized Health Network (SPHN). Conclusion: At the end of four SNF funding periods, the STCS represents a transplant cohort with a patient volume largely above 4000, that experiences large international recognition and that serves a broad variety of clinical, translational, interventional, psychosocial, and health services research. The presented approach to expand the data model towards a data and interoperability platform will prepare the STCS to enter the personalized health area.

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