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REVIEW

An overview of EU and USA intestinal transplant current activity

Analyse de l'activité actuelle de transplantation intestinale en Europe et aux États-Unis

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KEYWORDS
Intestinal transplantation;
Outcomes;
Europe (EU);
USA

Summary
Aim of the study: To report the current activity of intestinal transplantation in Europe (EU) and Unites States of America (USA), underlining outcomes in the last 5 years and discussing possible trends.
Patients and methods: Data review of results was performed through analysis of ITR and UNOS registries, Eurotransplant and newsletter transplant reports, congress abstracts, international published literature, personal communications and hospital web sites.
Results: The absence in Europe of a sole organization collecting donors and the presence of many low-volume centers (less than 5 cases/year) makes the difference with USA: in the last 5 years (2010—2014), 222 intestinal/multivisceral transplants have been performed in EU countries (most of them in the UK), while in USA, the number of transplants achieved 634 procedures in the same period of time. Waiting list mortality remains unacceptable in both continents. Improved short-term results, with over 80% survival at 1 year, have been achieved in the busiest transplant centers likely due to immune-induction agents, more recently to innovative cross match strategies and optimizing organ allocation, but long term outcomes are still inferior to other organ transplants. Most long-term survivors were reintegrated to society with self-sustained socioeconomic status. The economic burden for the society is high and related costs are different between USA and EU (and inside Europe between member state's health-care systems), but cost-effectiveness for intestinal transplantation still needs to be proved.
Conclusion: Overall intestinal transplantation continues to develop in EU and USA together with surgical and medical rehabilitation of patients affected by short gut syndrome.

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Registre des transplantations intestinales

Résumé
But de l'étude. — Rapporter l'activité actuelle de la greffe de l'intestin en Europe et aux États-Unis, les résultats de la transplantation d'intestin à partir des données des cohortes européennes et du registre international des transplantations intestinales (RITI) au cours des cinq (5) dernières années et la discussion sur l'évolution de cette activité.
Patients et méthodes. — Une revue de la littérature a été effectuée concernant les résultats de la transplantation d'intestin en incluant les données du RITI, registre UNOS (United Nation Organ Sharing), Eurotransplant et Newsletter Transplant reports, les résumés publiés dans les congrès nationaux et internationaux, la littérature scientifique, communication personnelle et site web des hôpitaux.
Résultats. — En Europe, l'absence d'une organisation unique centralisant les dons d'organes pour la transplantation intestinale (TI) et la faible activité de transplantation de la majorité des centres (moins de cinq transplantations/an) rend difficile l'analyse statistique des résultats de la transplantation. Durant les cinq (5) dernières années (2010—2014), 222 patients ont bénéficié d'une transplantation intestinale/multiviscérale en Europe, principalement au Royaume-Uni. Aux États-Unis, on note 634 patients qui ont bénéficié d'une greffe sur la même période. La mortalité des patients sur liste d'attente de TI reste importante sur les deux continents. Dans les centres pratiquant un grand nombre de transplantation, il existait une amélioration des résultats à court-terme avec 80 % de survie à 1 an. Cette augmentation de survie était due à l'amélioration des traitements antirejet, l'utilisation de greffons compatibles avec l'hôte et l'optimisation de la répartition des greffons. Malgré cela, les résultats à long-terme de la greffe de l'intestin restent inférieurs à ceux d'autres greffes d'organes. La majorité des patients avec une survie prolongée après transplantation avait une qualité de vie conservée et un statut socioéconomique préservé. L'insuffisance intestinale est responsable d'un coût important pour les organismes de santé européennes. La place de la transplantation en termes de coût-efficacité dans la prise en charge de l'insuffisance intestinale reste à définir.
Conclusion. — Globalement, la transplantation d'intestin continue à se développer en Europe et aux États-Unis avec une réhabilitation des malades atteints d'un intestin court.

Introduction

Is intestinal transplantation ''squeezed'' between TPN and rehabilitation?

Total parenteral nutrition (TPN) is a life-saving therapy for patients with intestinal failure. Nowadays, morbidity and mortality for patients with short gut syndrome on TPN are low, especially with advances in technology and pharmacological applications of TPN: ethanol or antimicrobial lock therapy (such as taurolidine) and omega-3 lipid formulations [1—3] were introduced to reduce the risks associated with TPN and glucagon-like peptide 2 analogue, along with growth hormone [4], are available in few countries (USA, Germany, France, etc.) to enhance gut adaptation and achieve nutritional autonomy in few patients affected by short gut syndrome. Autologous surgical reconstruction and bowel lengthening procedures [5] have been increasingly utilized for patients with complex abdominal pathology and short-bowel syndrome. Is there still any therapeutic room for intestinal transplantation (ITx)? ITx is now recognized as an option for patients with chronic intestinal failure (CIF) who develop complications of TPN and in whom surgical and/or medical attempts at intestinal rehabilitation have failed [6,7]. Patients with TPN related liver disease will require a liver graft combined with bowel or as part of a multivisceral (MVT) transplant: ITx are more commonly performed in adults while MVT are most frequent in infants, probably due to the pediatric tendency to liver insufficiency during the early TPN course and sometimes due to technical reasons. Intestinal grafts are very susceptible to rejection due to high concentration of lymphoid tissue: therefore, a high level of immune-suppression is required to prevent rejection, which can lead to serious and life threatening sepsis. During the last 10 years, application of immune induction agents in ITx/MVT recipients like antithymocyte globulin (Thymoglobulin®, Genzyme Corporation) [8], anti-interleukin receptor globulin as daclizumab (Zenapax®, Biogen Idec and Abbott Corporation) [9], and the latest therapy, anti-CD54 monoclonal antibody alemtuzumab (Campath®, Genzyme Corporation) [10] has significantly reduced the incidence of early rejection and almost eliminated early graft loss. ITx have the best short-term outcome, with over 80% survival at 1 year, in the busiest transplant centers while patients requiring MVT have a 1-year survival less than 70%. Systemic sepsis and acute rejection are the major determinants of early postoperative outcome. For patients surviving the first year, simultaneous transplantation of the liver with the intestine affords some survival advantage though long-term outcome of ITx/MVT does not yet match other abdominal organs. Outcomes for intestinal re-transplantation are poor as a result of immunology and patient debility [11]. Intestinal and multivisceral transplantation has spread worldwide and nowadays only