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# Immunotherapy before solid organ transplantation: an international transplant community-focused survey

Tommy Ivanics

Marco Claasen

David Al-Adra

Gonzalo Sapisochin

prevalence of rPSC was 23.5% (12/51). Retransplantation for rPSC occurred in 8.3% (1/12). The prevalence of IBD was 82.4% (42/51), consisted of ulcerative pancolitis (64.7%, 33/51), ulcerative proctitis (3.9%), left-sided UC (2%) and Crohn's disease (9.8%). Males are much more likely than females to undergo a colectomy at any time (OR 5.5, 95% CI 1.07–28.22, p 0.041). Refractory IBD was the predominant indication for a colectomy (10/16), followed by dysplasia or colon cancer (6/16). In the post-transplant period, 69% had stable IBD without therapy escalation, 11.9% were escalated to a biologic, 19% underwent a colectomy for active IBD symptoms. Pretransplant colectomy negatively predicted rPSC, in this subgroup 0% (0/6) developed rPSC. Neither recipient sex (OR 1.14, 95% CI 0.26–5.0, p 0.86) or recipient age predicted the likelihood of rPSC. There was no association between donor sex on rPSC (OR 1.25, 95% CI 0.30–5.27, p 0.76). A trend towards increased rPSC was observed in male donors to female recipients versus female-to-female transplants (OR 6, 95% CI 0.33–107.42, p 0.224). Overall, having a post-transplant colectomy, subtotal or total, irrespective of timing, did not significantly impact rPSC (OR 0.389, 95% CI 0.09–1.66, p 0.20). Diagnosis of IBD was not associated with an increased risk of rPSC (OR 1.21, p 0.83).

**Conclusion:** Several factors were associated with rPSC after liver transplant in patients with PSC and IBD, pre-transplant colectomy was found to be protective, male donor to female recipient was a potential risk factor. It is important to study these factors in multi-centered cohorts to understand the pathogenesis of PSC. Pretransplant total colectomy may be beneficial for several reasons, reducing rPSC, controlling IBD activities, and lowering dysplasia and colon cancer rates in the post-transplant population.

## SAT285

### Predictive factors of antibody response after anti-SARS-CoV-2 vaccine in liver transplant recipients

Ilias Kounis[1], Bruno Roche[1], Lea Duhaut[1], Rodolphe Sobesky[1], Eleonora De Martin[1], Edoardo Poli[1], Alina Pascale[1], Gabriella Pittau[1], Oriana Ciacio[1], Jean-Charles Duclos-Vallée[1], Didier Samuel[1], Cyrille Feray[1], Audrey Coilly[1]. *[1]AP-HP Hôpital Paul-Brousse, Centre Hépato-Biliaire;, Inserm, Université Paris-Saclay, UMR-S 1193;, Université Paris-Saclay, Inserm, Physiopathogénèse et traitement des maladies du Foie;, FHU Hepatinov, Villejuif, France*
Email: ilias.kounis@aphp.fr

**Background and aims:** A weak immune response to 2 doses of anti SARS-CoV2 vaccine was observed in solid-organ transplant recipients, encouraging the authorities to recommend a third dose in immunosuppressed patients. The aim of our study was to search for predictive factors of an antibody response to the vaccines and describe their efficacy and tolerance in a large population of liver transplant (LT) recipients.

**Method:** This is retrospective monocenter study conducted at Paul Brousse Hospital in France. All adult LT recipients followed up in our transplant center and vaccinated with at least one dose of vaccine from January 2021 to September 2021 were included. A strong immune response to vaccination was defined as the presence of antibodies titration to SARS-CoV-2 spike protein up to 250 U/ml after 2nd or 3rd dose of vaccine.

**Results:** 745 patients were included. Of them, 642 (85.5%) had 2 doses and 343 (46%) patients had three. Mean age at vaccination was 59.1 (± 14.5) years and mean time from LT to vaccination was 12.1 (± 9.7) years. Immunosuppression was due to one immunosuppressive drug in 29.7% of patients, 2 drugs in 57.6% and 3 drugs in 12.5%. The prevalence of anti-SARS-CoV-2 antibodies was 11% (19 patients) before the first dose, 40.8% (53 patients) before the second dose, 66.2% (392 patients) before the third dose, and 72.5% (271 patients) after the third dose. 190 (36.7%) patients had a strong antibody titration after 2nd injection and 139 (47.6%) after 3rd injection. Patients who had strong antibody response had, in time of vaccination, lower Tacrolimus blood concentrations ( p = 0.04), lower Mycophenolate ( p < 0.001) and corticosteroid doses ( p = 0.009), lower creatinine ( p = 0.04), higher hemoglobin ( p < 0.001) levels and longer time between LT and vaccination ( p = 0.004). In multivariate analysis, predictive factors of strong response were time since LT >9.8 years ( p = 0.001), while creatinine levels >95 µmol/l ( p = 0.014), use of corticosteroids ( p < 0.001) and high mycophenolate dose ( p < 0.001) in time of vaccination were correlated with an absence of strong response to the vaccine. Fifteen (2%) patients had COVID after vaccination, 2 of them after 3 doses of vaccine. No serious adverse events were for 99.7% of patients.

**Conclusion:** A strong immune response was detected to less than a half of LT recipients after 3 doses of anti-SARS-CoV-2 vaccine. These patients remain at risk for Covid-19, especially if they had a recent LT or have high levels of immunosuppression.

## SAT286

### Immunotherapy before solid organ transplantation: an international transplant community-focused survey

Tommy Ivanics[1,2,3], Marco Claasen[1,4], David Al-Adra[5], Gonzalo Sapisochin[1]. *[1]University Health Network, Multi-Organ Transplant Program, Toronto, Canada; [2]Henry Ford Hospital, Department of Surgery, Detroit, United States; [3]Uppsala University, Department of Surgical Sciences, Akademiska Sjukhuset, Uppsala, Sweden; [4]Erasmus MC, Department of Surgery, Rotterdam, Netherlands; [5]University of Wisconsin-Madison, Division of Transplantation, Madison, United States*
Email: tommy.ivanics@uhn.ca

**Background and aims:** The use of immunotherapy for cancer has increased and is expected to continue to grow. The outcomes after solid organ transplantation (SOT) in patients having received immunotherapy before SOT remain unclear. We sought to evaluate the global transplant surgery community's attitude and experience with patients who have received immunotherapy for malignancy before SOT.

**Method:** An online-based survey was sent to North American transplant directors in December-2020 and to members of the International Liver Transplant Society (ILTS) in November-2021 to evaluate experiences with, and attitudes towards, SOT in recipients with previous immunotherapy for cancer. Descriptive summary statistics were reported.

**Results:** 134 respondents provided consent to participate in the survey and 91 completed the survey for a completion rate of 68%. Respondents represented center experience from North America, South America, Europe, Asia, and Australia. Most represented centers from the United States (n = 22, 24%), followed by India (n = 9, 10%), and Spain (n = 4, 4%). Fifty-eight (64%) respondents would consider offering a SOT to a patient with previous history of immunotherapy for cancer. Thirty (33%) respondents were aware of such recipients receiving immunotherapy for cancer before a SOT. The majority (n = 69, 77%) of respondents reported an absence of institutional clinical management policies in this setting.

**Conclusion:** Though this survey's response rate was relatively low, it provides preliminary insight into the attitudes and experiences with SOT after immunotherapy for cancer in the international transplant community. This represents a clinical scenario for which outcomes should be clarified and consensus guidelines established to inform future clinical management, especially as immunotherapy for cancer is likely to increase in coming years.

| | Overall (N=139) |
|---|---|
| **1a. Would you consider offering an organ transplant to a patient with a previous history of immunotherapy treatment for cancer?** | |
| N-Missing | 48 |
| Maybe/Don't know | 21 (23%) |
| No | 12 (13%) |
| Yes | 58 (64%) |
| **2a. Are you aware of any transplant recipients at your institution that were denied listing for transplantation based on prior immunotherapy exposure?** | |
| N-Missing | 48 |
| Don't recall | 9 (10%) |
| No | 73 (80%) |
| Yes | 9 (10%) |
| **3a. Are you aware of any transplant recipient in your institution that received immunotherapy for cancer before an organ transplant?** | |
| N-Missing | 48 |
| Don't recall | 7 (8%) |
| No | 54 (59%) |
| Yes | 30 (33%) |
| **4a. Does your transplant program have any policies in place regarding clinical management of these patients?** | |
| N-Missing | 49 |
| Don't know | 3 (3%) |
| No | 69 (77%) |
| Yes | 18 (20%) |
| **Time-frame between treatment and transplant – If "yes" to 1a. Would you consider offering an organ transplant to a patient with a previous history of immunotherapy treatment for cancer?** | |
| | Overall (N=58) |
| **1b. What would you consider an acceptable time-frame between the treatment and transplant?** | |
| <4 months | 13 (22%) |
| 4-12 months | 31 (53%) |
| 12-24 months | 6 (10%) |
| >24 months | 8 (14%) |
| **Number of denied listings - If "yes" to 2. Are you aware of any transplant recipients at your institution that were denied listing for transplantation based on prior immunotherapy exposure?** | |
| | Overall (N=9) |
| **2b. How many such patients are you aware of at your institution?** | |
| 1-2 | 4 (44%) |
| 3-5 | 4 (44%) |
| >5 | 1 (11%) |
| **Transplant recipients with prior immunotherapy – If "yes" to 3. Are you aware of any transplant recipient in your institution that received immunotherapy for cancer before an organ transplant?** | |
| | Overall (N=30) |
| **3b. How many patients are you aware of at your institution received immunotherapy for cancer before an organ transplant?** | |
| 1-2 | 20 (67%) |
| 3-5 | 4 (13%) |
| >5 | 6 (20%) |
| **3c. Approximately when did you transplant your first patient who had received prior immunotherapy for cancer?** | |
| Missing | 1 |
| Earlier | 2 (7%) |
| 2016 | 1 (3%) |
| 2017 | 1 (3%) |
| 2018 | 8 (28%) |
| 2019 | 9 (31%) |
| 2020 | 8 (28%) |
| **3d. In the patients that received an organ transplant after immunotherapy receipt for cancer - what was the immunotherapy treatment for?** | |
| Liver cancer | 26 (87%) |
| Other | 4 (13%) |
| **3e. What type of immunotherapy was used** | |
| Missing | 1 |
| Don't recall | 1 (3%) |
| Immune checkpoint inhibitor | 23 (79%) |
| Immune system modulator | 1 (3%) |
| Monoclonal antibody | 3 (10%) |
| T-cell transfer therapy | 1 (3%) |
| **3k. Graft survival: In your opinion and experience, how do the outcomes of these patients compare to the average transplant patient?** | |
| Missing | 1 |
| Have not followed them for enough time to make this determination | 10 (35%) |
| Better | 1 (3%) |
| Same | 16 (55%) |
| Worse | 2 (7%) |
| **3l. Patient survival: In your opinion and experience, how do the outcomes of these patients compare to the average transplant patient?** | |
| Missing | 1 |
| Have not followed them for enough time to make this determination | 11 (38%) |
| Better | 1 (3%) |
| Same | 15 (52%) |
| Worse | 2 (7%) |
| **Time-period between immunotherapy and transplant - If "yes" to 4a. Does your transplant program have any policies in place regarding clinical management of these patients** | |
| | Overall (N=18) |
| **4b. Do you require a certain time period between last dose of immunotherapy and transplant?** | |
| No | 4 (22%) |
| Yes, <6 months | 10 (56%) |
| Yes, 6-12 months | 2 (11%) |
| Yes, 12-24 months | 1 (6%) |
| Yes, >24 months | 1 (6%) |

Figure: (abstract: SAT286)

## SAT287

## Evaluating the predictive performance and transferability of machine learning-based prediction models using national liver transplant data registries

Tommy Ivanics[1,2,3], Delvin So[4], Marco Claasen[5,6], David Wallace[7,8], Madhukar Patel[9], Annabel Gravely[5], Kate Walker[7], Thomas Cowling[7], Lauren Erdman[4], Gonzalo Sapisochin[5]. *[1]University Health Network, Toronto, Canada; [2]Henry Ford Hospital, Department of Surgery, Detroit, United States; [3]Uppsala University, Department of Surgical Sciences, Uppsala, Sweden; [4]The Hospital for Sick Children, The Centre of Computational Medicine, Toronto, Canada; [5]University Health Network, Multi-Organ Transplant Program, Toronto, Canada; [6]Erasmus MC Transplant Institute, University Medical Centre Rotterdam, Department of Surgery, division of HPB and Transplant Surgery, Rotterdam, Netherlands; [7]London School of Hygiene and Tropical Medicine, Department of Health Services Research and Policy, United Kingdom; [8]Guy's and St Thomas' Hospital, Department of Nephrology and Transplantation, United Kingdom; [9]University of Texas Southwestern Medical School, Division of Surgical Transplantation, Dallas, United States*
Email: tommy.ivanics@uhn.ca

**Background and aims:** Large, national registries of liver transplant (LT) data are collected in many countries. We compared data from