

出國報告（出國類別：開會）

2023年歐洲器官移植醫學會國際會議  
ESOT Congress 2023

服務機關：臺北榮民總醫院外科部一般外科

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## 摘要

歐洲器官移植醫學會國際會議是國際微器官移植會議，主要探討目前最新器官移植醫學新知。本次國際會議除各個器官移植的經驗分享、薪火傳承外，並邀請當下世界權威演講及討論當前在器官移植醫學界最先進且最熱門的話題，其中又以高難度的”胰臟移植”最吸引眾人注意，受益良多。職在會中發表論文3篇，藉此機會提高本院及台灣在胰臟移植醫界的能見度及知名度。同時在會場中聆聽胰臟移植相關的演講，並與國外學者專家交換心得，藉以增廣見聞，擷取新知。

此次參與歐洲器官移植醫學會國際會議，深感器官移植已有變化，尤其是”胰臟移植”。職在會中發表論文，藉此告知本院在醫學上的進展，宣揚本院名聲，以建立人脈，期待往後能夠搭起交流的橋樑。

關鍵字：歐洲器官移植醫學會國際會議 (ESOT Congress)、胰臟移植、器官移植

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## 一、目的

職此行的目的主要是參加2023年9月17~20日在希臘雅典舉辦的2023年歐洲器官移植醫學會國際會議 (ESOT Congress 2023)，發表論文，吸取醫學新知，希望能吸取醫學新知及爭取國際醫學會曝光機會，藉以提高本院及台灣的聲譽。



## 二、過程

全程參加2023年9月17~20日在希臘雅典舉辦的2023年歐洲器官移植醫學會國際會議 (ESOT Congress 2023)，發表論文職發表論文3篇：


### 1. Pancreas transplant with enteric drainage: experience of Taipei Veterans General Hospital

**Background:** Insulin-dependent diabetes mellitus (IDDM) eventually leads to nephropathy, neuropathy, retinopathy and angiopathy after 10 - 30 years. Nowadays, pancreas transplantation is the treatment of choice in tight control of blood sugar for IDDM patients. Simultaneous pancreas and kidney (SPK) transplantation would be an ideal treatment option to resolve both uremia and IDDM. We will present our experience in pancreas transplant.

**Methods:** From September 2003 to September 2020, 164 cases of pancreas transplant were performed, including 37 SPK, 20 pancreas after kidney transplant (PAK), 78 pancreas transplant alone (PTA), 28 pancreas before kidney transplant (PBK), and 1 pancreas after liver transplant (PAL). The clinical courses including blood sugar, C-peptide and HbA1C levels and renal function after operation were recorded. The complications and outcomes were also evaluated.

**Results:** The technique success rate for both pancreas and kidney transplants are 97%. Seven underwent pancreas re-transplant. The most common surgical complication is GI bleeding followed by intraabdominal bleeding. There is 4 surgical mortality. The most common infection is CMV infection, followed by pseudomembranous colitis. Rejection occurred in 25% including 17% acute and 9% chronic rejection. Rejection occurred most commonly in PTA, acute in 23% and chronic in 14%. Graft loss occurred in 36 cases, with 5 (3%) technique failure, 6 (4%) acute rejection, 11 (7%) chronic rejection, 13 (8%) death with functioning graft, and 2 (1%) unknown reason. Graft loss occurred most commonly in PTA (36%). 1-, 5-, and 10- year pancreas


graft survival rate is 96%, 90% and 66% respectively. **Conclusions:** Pancreas transplant provided an ideal insulin-free solution with physiological blood sugar control for diabetic patients with and without end-stage renal disease. Pancreas transplant could be even performed simultaneously with, after and also before kidney transplant.



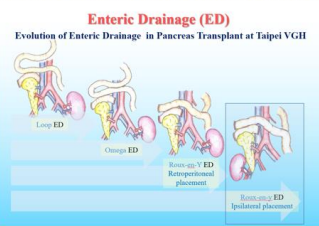
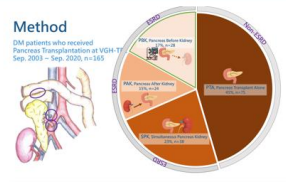

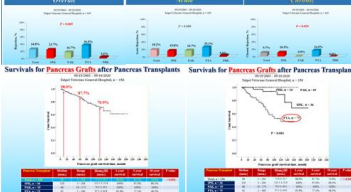
**ESOT Congress**  
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**PANCREAS TRANSPLANT WITH ENTERIC DRAINAGE: EXPERIENCE OF TAIPEI VETERANS GENERAL HOSPITAL**

P005



**Pancreas transplant provided an ideal insulin-free solution with physiological blood sugar control for diabetic patients with and without end-stage renal disease. Pancreas transplant could be even performed simultaneously with, after and also before kidney transplant.**

BACKGROUND	METHOD	RESULTS & CONCLUSION								
<p><b>Evolution of pancreas transplant at Taipei Veterans General Hospital</b></p> <p style="color: red; text-align: center;"><b>Enteric Drainage (ED)</b></p> <p style="text-align: center;">Evolution of Enteric Drainage in Pancreas Transplant at Taipei VGH</p>  <p style="text-align: center;"><b>Aims of Study</b></p> <ul style="list-style-type: none"> <li>&gt; To assess <b>immunological and graft survival</b> outcomes after pancreas transplant with <b>enteric drainage</b></li> <li>&gt; To <b>compare</b> surgical outcomes and late complications between each <b>pancreas transplant subgroup</b>.</li> </ul>	<p><b>Method</b></p> <p>160 patients who received Pancreas Transplantation at VGH (1 Sep. 2007 – Sep. 2020, n=160)</p>  <p style="text-align: center;"><b>Pancreas Transplant at Taipei Veterans General Hospital</b></p> <p style="text-align: center;">63/97/2022 – 177</p>  <p style="text-align: center;"><b>Yi-Ming Shyr</b></p> <p style="text-align: center;"><b>Shin-E Wang Shih-Chin Chen Bor-Uei Shyr</b> Taipei Veterans General Hospital Taiwan</p>	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Rejection after Pancreas Transplant Overall</th> <th>Rejection after Pancreas Transplant PAK</th> <th>Rejection after Pancreas Transplant PBK</th> <th>Rejection after Pancreas Transplant PTA</th> </tr> </thead> <tbody> <tr> <td>3.8%</td> <td>16.7%</td> <td>29.8%</td> <td>37.0%</td> </tr> </tbody> </table> <p><b>Survival for Pancreas Grafts after Pancreas Transplants</b></p>  <p><b>Conclusion</b></p> <ul style="list-style-type: none"> <li>&gt; <b>Rejection, acute and chronic is highest in PTA, and lowest in PBK.</b></li> <li>&gt; <b>Pancreas graft survival is lowest in PTA</b></li> <li>&gt; <b>Patient survival after pancreas transplant is lowest in PBK.</b></li> <li>&gt; <b>Enteric drainage itself would not compromise the immunological and graft survival outcomes in pancreas transplant.</b></li> </ul>	Rejection after Pancreas Transplant Overall	Rejection after Pancreas Transplant PAK	Rejection after Pancreas Transplant PBK	Rejection after Pancreas Transplant PTA	3.8%	16.7%	29.8%	37.0%
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<p>Shyr YM, Wang SE, Chen SC, et al. Reappraisal of pancreas transplantation. J Chin Med Assoc 2019;82:531-534.</p>		<p>Shih MS, Shyr BU, Shyr BS, Chen SC, Shyr YM, Wang SE. Pancreas transplant with enteric drainage at a single institute in Asia. Asian J Surg. 2022 Jan;45(1):412-418. doi: 10.1016/j.ajssur.2021.07.028. Epub 2021 Aug 4. PMID: 34364767.</p>								

## 2. Pancreas transplant alone in uremic (PTAU) patients

**Background:** Theoretically, pancreas before kidney transplant (PBK) could be an option for those waiting for both pancreas and kidney grafts. Outcomes of pancreas before kidney transplant (PBK) have never been reported before. **Methods:** In total, 160 diabetes patients undergoing pancreas transplants were included in this study. Clinical data and outcomes were compared between pancreas transplant subgroups. **Results:** There were 26 (16%) PBK. The rates of pancreas graft rejection were 3.8% in the pancreas before kidney transplant, 16.7% in the pancreas after kidney transplant (PAK), 29.8% in the simultaneous pancreas and kidney transplant (SPK), and 37.0% in the pancreas transplant alone (PTA) groups. There was no chronic rejection in the PBK and PAK groups. Fasting blood sugar and serum hemoglobin A1c levels after PBK were not significantly different from those of other subgroups. Serum C-peptide levels were significantly higher in the PBK than in the other subgroups. The 5-year pancreas graft survival was 100% for the PBK and PAK, 97.0% for the SPK, and 77.9% for PTA. **Conclusions:** given the inferior patient survival outcome, PTAU is still not recommended unless SPK and PAK is not available. Although PTAU could be a treatment option for patients with diabetes complicated by end-stage renal disease (ESRD) in terms of surgical

risks, endocrine function, and immunological and graft survival outcomes, modification of the organ allocation policies to prioritize SPK transplant in eligible patients should be the prime goal.



## PANCREAS TRANSPLANT ALONE IN UREMIC (PTAU) PATIENTS

P004



**PTAU (PBK) could be a treatment option for patients with diabetes complicated by ESKD in terms of surgical risks, endocrine function, and immunological and graft survival outcomes**

BACKGROUND	METHOD	RESULTS & CONCLUSION
<p><b>Pancreas Allocation System in Taiwan</b></p> <p>Pancreas and kidney waiting lists are not combined together, and the diabetic candidates (about 100 patients) on the pancreas waiting list are always much outnumbered by uremic candidates (&gt; 7,000 patients) on the kidney waiting list.</p> <p><b>Uremia-associated Immune Deficiency</b> Most of uremic-associated dysfunction in the immune and response capability.</p> <p><b>Aims of Study</b></p> <ul style="list-style-type: none"> <li>To assess the <b>feasibility</b> of PBK by comparing the <b>surgical outcome</b> and <b>patient survival</b> with other transplant subgroups.</li> <li>To clarify the <b>justification</b> of PBK by comparing the <b>endocrine function</b>, <b>immunological</b> and <b>graft survival</b> with other transplant subgroups.</li> </ul> <p><small>Risk factors for delayed gastric emptying in pancreatoduodenectomy. Sci Rep. 2022; Dec 13; 12(1):22270. doi: 10.1038/s41598-022-26814-7. PMID: 36564517</small></p>	<p><b>Pancreas Transplant</b></p> <p><b>Types of pancreas transplantation</b></p> <p><b>Rejection after Pancreas Transplant Overall</b></p> <p><b>Fasting Blood Sugar after Pancreas Transplant</b></p> <p><b>HbA1c after Pancreas Transplant</b></p> <p><b>Serum C-peptide after Pancreas Transplant</b></p>	<p><b>Survival for Pancreas Graft after Pancreas Transplant</b></p> <p><b>Survival for Patient after Pancreas Transplant</b></p> <p><b>Conclusion</b></p> <ul style="list-style-type: none"> <li>Given the <b>inferior patient survival outcome</b>, <b>PTAU (PBK) is still not recommended unless SPK and PAK is not available.</b></li> <li><b>PTAU (PBK) could be a treatment option for patients with diabetes complicated by ESKD in terms of surgical risks, endocrine function, and immunological and graft survival outcomes.</b></li> <li><b>Modification of the organ allocation policies to prioritize SPK transplant in eligible patients should be the prime goal, and subsequent KAP should be encouraged.</b></li> </ul> <p><b>Terminology</b></p> <ul style="list-style-type: none"> <li>▢ PBK : Pancreas before kidney</li> <li>▢ PTAU : Pancreas transplant alone</li> <li>▢ KAP : Kidney after pancreas</li> </ul> <p><small>1. Berjas MG, Mirreis RW, Litzus NH. Loss of renal function causes premature aging of the immune system. Blood purification. 2013;36(3-4):173-4. 2. Czerpak T, Legendre M, Carron C, Vachey C, Couvrot D, Rebouas JD, et al. Uremia-induced immune senescence and clinical outcomes in chronic kidney disease patients. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2020;35(4):624-32.</small></p>

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### 3. Pancreas transplant for T2DM

**Background:** Pancreas transplantation remains the best long-term treatment option to achieve physiological euglycemia and insulin independence in patients with labile diabetes mellitus (DM). It is widely accepted as an optimal procedure for type 1 DM (T1DM), but its application in type 2 DM (T2DM) is not unanimously acknowledged. **Methods:** In total, 146 diabetes patients undergoing pancreas transplantation were included in this study. Clinical data and outcomes were compared between the T1DM and T2DM groups. **Results:** Majority (93%) of the pancreas transplantations in T2DM were for uremic recipients. Complications occurred in 106 (73%) patients, including 70 (48%) with early complications before discharge and 79 (54%) with late complications during follow-up period. Overall, rejection of pancreas graft occurred in 37 (25%) patients. Total rejection rate in T2DM recipients was significantly lower than that in T1DM. The short-term and long-term outcomes for endocrine function in terms of fasting blood sugar and hemoglobin A1c levels and graft survival rates are comparable between the T2DM and T1DM groups. **Conclusions:** T2DM is not inferior to T1DM after pancreas transplantation in terms of surgical risks, immunological and endocrine outcomes, and graft survival rates. Therefore, pancreas

transplantation could be an effective option to treat selected uremic T2DM patients without significant insulin resistance.



## Pancreas transplant for T2DM

P006



**T2DM is not inferior to T1DM after pancreas transplantation in terms of surgical risks, immunological and endocrine outcomes, and graft survival rates. Therefore, pancreas transplantation could be an effective option to treat selected uremic T2DM patients without significant insulin resistance.**



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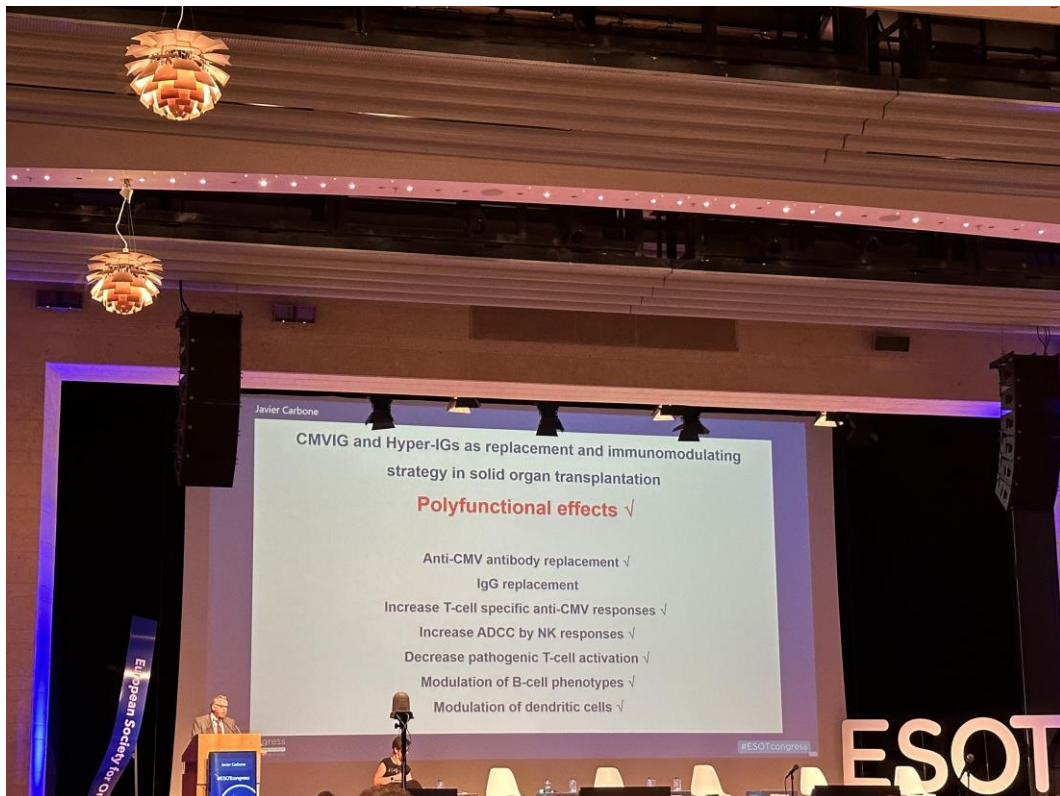
Bor-Shiuan Shyr, Bor-Uei Shyr, Shih-Chin Chen, Che-Chuan Loong, Yi-Ming Shyr, Shin-E Wang. A comparative study of pancreas transplantation between type 1 and 2 diabetes mellitus. HepatoBiliary Surg Nutr (HBSN) 2021;10(4):443-453

### 三、心得

歐洲器官移植醫學會國際會議 (ESOT Congress) 是一個國際微器官移植會議，主要探討目前最新的器官移植醫學新知。本次歐洲器官移植醫學會國際會議除了各個器官移植的經驗分享、薪火傳承外，並邀請當下世界權威演講及討論當前在器官移植醫學界最先進且最熱門的話題，其中又以高難度的”胰臟移植”最為吸引眾人的注意，受益良多。職在會中發表” Pancreas transplant alone in uremic (PTAU) patients” 論文1篇，藉此機會提高本院及台灣在胰臟移植醫界的能見度及知名度。同時在會場中聆聽胰臟移植相關的演講，並與國外學者專家交換心得，藉以增廣見聞，擷取新知，希望對胰臟移植照顧有所幫助。

這個會議提供了很多專家會議，較有趣的主题是” CMVIG and Hyper-IGs as replacement and immunomodulating strategy in solid organ transplantation”。CMVIG and Hyper-IGs具有polyfunction effects, 包括: anti-CMV antibody replacement, IgG replacement, increase T-cell specific anti-CMV responses, increase ADCC by NK responses, decrease pathogenic T-cell activation, modulation of B-cell phenotypes and

modulation of dendritic cells.



經由此次參與的歐洲器官移植醫學會國際會議，深感受到器官移植已有些許的變化，尤其是” 胰臟移植”。職在會中發表論文，藉此告知本院在醫學上的進展，宣揚本院的名聲，以建立人脈，期待往後能夠搭起交流的橋樑。

#### 四、建議事項

慶幸經由我們胰臟團隊的努力，已於2003年前即著手發展高難度的”胰臟移植”，目前已遙遙領先臺灣其他醫學中心，能和國際接軌，並獲得2017年SNQ國家品質標章銅獎殊榮，成為國際亮點，和此次國際會議演講相互輝映，值得欣慰，也感謝醫院多年來的支持與鼓勵，希望醫院能繼續栽培年輕的胰臟移植外科醫師，承先啟後，確保臺北榮民總醫院胰臟團隊胰臟移植在臺灣領先的地位。