Surgical access for kidney and pancreas transplantation in obese patients has a high morbidity.

The resulting complications have deleterious effects on both short and long term patient and graft survival.

With conventional surgical approaches, most transplant centers deny obese patients access to transplantation.

Obese patients denied access to transplantation have less than 5% probability to reach target weight at most US transplant centers.

There is a dramatic survival difference between dialysis and transplantation even in the most obese patient populations.

Denying access to transplantation to obese patients is not patient focused and is unfair, leaving patients exposed to the high mortality of chronic dialysis.
ADJUSTED FIVE-YEAR SURVIVAL ON DIALYSIS

Incident dialysis patients & patients receiving a first transplant in the calendar year. All probabilities adjusted for age, gender, & race; overall probabilities also adjusted for primary diagnosis. All ESRD patients, 2005, used as reference cohort. Modality determined on first ESRD service date; excludes patients transplanted or dying during the first 90 days. Five-year survival probabilities noted in parentheses. Dialysis patients followed from day 90 after initiation; transplant patients followed from the transplant date.

USRDS 2010 ADR

Kidney Transplantation Significantly Improves Patient and Graft Survival Irrespective of BMI: A Cohort Study

N. Krishnan1,2, R. Higgins1, A. Short1, D. Zehnder1, D. Pitcher1, A. Hudson1 and N. T. Raymond1
DOES OBESITY IMPACT SURVIVAL ON DIALYSIS?

Mortality Risk among Younger Obese Dialysis Patients, Hoogeveen et al.


ORIGINAL ARTICLES

Obesity, Surgical Site Infection, and Outcome Following Renal Transplantation

Raymond J. Lynch, MD, MS, David N. Ranney, BS, Cal Shi, MS, Dennis S. Lee, BS, Niharika Samala, MD, and Michael J. Englesbe, MD

Annals of Surgery • Volume 250, Number 6, December 2009
WHAT IMPACTS GRAFT SURVIVAL?

Cox model of graft survival

<table>
<thead>
<tr>
<th>Variable</th>
<th>HR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI &lt; 20</td>
<td>2.736</td>
<td>1.056-7.088</td>
</tr>
<tr>
<td>Rejection</td>
<td>1.430</td>
<td>1.246-1.642</td>
</tr>
<tr>
<td>Female sex</td>
<td>1.144</td>
<td>0.733-1.784</td>
</tr>
<tr>
<td>Donor age</td>
<td>1.015</td>
<td>0.998-1.031</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.044</td>
<td>0.671-1.623</td>
</tr>
<tr>
<td>Recipient age</td>
<td>2.194</td>
<td>1.357-3.546</td>
</tr>
<tr>
<td>DGF</td>
<td>1.024</td>
<td>1.006-1.043</td>
</tr>
<tr>
<td>BMI ≥ 30</td>
<td>1.062</td>
<td>0.677-1.666</td>
</tr>
<tr>
<td>Black race</td>
<td>2.802</td>
<td>1.668-4.707</td>
</tr>
<tr>
<td>Living donor</td>
<td>0.879</td>
<td>0.494-1.564</td>
</tr>
<tr>
<td></td>
<td>0.657</td>
<td>0.397-1.086</td>
</tr>
</tbody>
</table>

CORRELATION BETWEEN SSI AND BMI

SSI risk = -0.044 + 0.068 BMI

Lynch et al. Annals of Surgery • Volume 250, Number 6, December 2009
SSI AND GRAFT SURVIVAL

CONCLUSION

- Obese kidney transplant recipients without post-transplant wound infections present with similar post-transplant outcomes as normal weight recipients
HYPOTHESIS

- Minimizing surgical trauma by using robotic technology could reduce wound infections and improve outcomes of kidney transplantation in obese recipients.
ROBOTIC VASCULAR ANASTOMOSIS

ROBOTIC BLADDER ANASTOMOSIS
UVA’S ROBOTIC TRANSPLANT KIDNEY AND PANCREAS TRANSPLANT PROGRAM

• We have completed the largest series of robotic kidney transplants in obese patients outside UIC

• We have completed the largest series of robotic pancreas transplants in the world.

Minimally invasive, robot-assisted procedure for kidney transplantation among morbidly obese: Positive outcomes at 5 years post-transplant

Mario Spaggiari1 | Frances Rose Lendacki2 | Caterina Di Bella1 |
Pier Cristoforo Giulianiotti2 | Enrico Benedetti1 | Jose Oberholzer3 | Ivo Tzvetanov1

<table>
<thead>
<tr>
<th>Months Post-Transplant</th>
<th>Robot (n = 28)*</th>
<th>Open (n = 28)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3-5-year graft survival, %</td>
<td>100/100/89.3</td>
<td>96.4/85.7/78.6</td>
</tr>
<tr>
<td>1-3-5-year patient survival, %</td>
<td>100/96.4/96.3*</td>
<td>100/96.4/96.4*</td>
</tr>
</tbody>
</table>

Clinical Transplantation, 2010;22:e13404.
https://doi.org/10.1111/cot.13404
CONCLUSION

Robotic kidney transplantation is an effective approach to reduce wound complications in obese recipients, allowing safe and successful kidney transplantation for patients previously denied access to transplantation.

UVA is the only program outside of Chicago that offers this as routine procedure for obese recipients.
Combined Robot-Assisted Kidney Transplantation and Sleeve Gastrectomy in a Morbidly Obese Recipient

Subhangshu M. Ayloo,1 Guiseppe D'Amico,1 Patricia West-Thielke,1 Lorenza Bejarano-Pineda,1 Ivo Trivisonno,1 Pier Carlo Bruno Giuberti,1 Enrico Benedetti,1 and Jose Oberholzer2

before 6 months after

2015:99: 1495–1498

Provided by Dr. S. Ayloo

Sleeve gastrectomy surgery in obese patients post–organ transplantation

Enrique F. Elli, M.D., Raquel Gonzalez-Heredia, M.D., Ph.D.,1 Lisa Sanchez-Johnsen, Ph.D.,2 Neil Patel, B.S., Raquel Garcia-Roca, M.D., Jose Oberholzer, M.D.

University of Illinois at Chicago College of Medicine, Chicago, Illinois

Received May 26, 2015, accepted November 28, 2015

Preoperative and postoperative outcomes between transplant and non-transplant patients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Transplant patients (n = 30)</th>
<th>Non-transplant patients (n = 300)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative time (min)</td>
<td>104.4 (SD = 62.3)</td>
<td>105.7 (SD = 26.6)</td>
<td>.953</td>
</tr>
<tr>
<td>Complications</td>
<td>3.2 (SD = 1.9)</td>
<td>2.7 (SD = 3.6)</td>
<td>.650</td>
</tr>
<tr>
<td>%EWL</td>
<td>45.8 (SD = 7.8)</td>
<td>45.1 (SD = 7.5)</td>
<td>.402</td>
</tr>
<tr>
<td>%EWL</td>
<td>49.3 (SD = 20.8)</td>
<td>55.1 (SD = 22.6)</td>
<td>.420</td>
</tr>
<tr>
<td>Change in BMI</td>
<td>15.3 (SD = 5.4)</td>
<td>15.1 (SD = 5.1)</td>
<td>.141</td>
</tr>
<tr>
<td>%EWL</td>
<td>23.4 (SD = 10.4)</td>
<td>26.0 (SD = 8.8)</td>
<td>.317</td>
</tr>
</tbody>
</table>

BMI = body mass index; %EWL = percent excess weight loss; %EWL = percent weight loss.

P = .00
Kidney Transplantation

BMI ≥ 30 kg/m^2

- Living donor
  - Robotic-assisted approach
    - Combined SG & KT
      - Weight loss
    - KT alone
      - Medical and Surgical approach

BMI < 30 kg/m^2

- No living donor
  - Open approach
  - Wait list
  - Weight loss
    - BMI ≥ 30 kg/m^2
    - BMI < 30 kg/m^2

Medical and Surgical approach