Sex, Birth Control, and Pregnancy after Transplant

Laura Roldan R.N., M.S.N., CCTC

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Objectives

• Identify Signs and Symptoms of Sexual Dysfunction
• Understand how Sexual Dysfunction can effect a person
• Describe common issues related to sexuality and the transplant recipient
• Describe the common causes of sexual dysfunction and treatments
• Understand what sexual practices are safe after transplant
• Identify birth control options which are safe for the transplant recipient
• Understand how the immune system works during pregnancy and its effect on the transplant recipient.
• Identify potential risks of pregnancy after transplant
• Understand the effects of immunosuppression in relation to pregnancy
• Discuss ways to care for the pregnant transplant recipient
Sexuality and Intimacy

• Helps people to feel normal
• Adds to quality of life
• Provides Pleasure
• Maintains relationships
• Affirms gender roles
• Sexual activity and orgasm produces a natural high.
Side Effects of Sexual Dysfunction

- Decreased self-esteem
- Relationship distress
- Depression
- Non-compliance
Sexual Issues After Transplant

- Decreased libido
- Erectile dysfunction
- Difficulty climaxing
- Fear of Intimacy
- Change in body Image
- Fertility Concerns
- Worried feelings about spouse

- Sexual Practices — “What’s ok”
- Physical Impairments
- Positions “What’s safe?”
- Change in relationship
- Pain
- Fatigue
Causes of Decreased Libido

- Menopause
- Hormonal
- Depression
- Pharmacologic
- Endocrine Issues
- Changes in body mechanics
- Age
- Alcohol
- Psychological Factors
Causes for Erectile Dysfunction

- Pharmacological
- Age
- History of Diabetes
- Smoking
- Alcohol
- Vascular Disease
- Decreased Testosterone
- Psychological
Relational Changes as Cause for Sexual Dysfunction

- Fear of hurting partner
- Sick for years (mobility)
- Change in relationship
- Learning to discover intimacy at a different level
- Rediscovering intimacy
- Cultural myths about sex
- Change in appearance
- Communication
Medications Causing Sexual Dysfunction

- Antihypertensives - diuretics, beta blockers
- Antidepressants - tricyclics, SSRI, MOI, lithium
- Antipsychotics
- Anti-anxiety - benzodiazepines
- Pain Meds - opioids
- Cholesterol Lowering agents - fibrates, HMG-CoA reductase
- Antiarrhythmics
- Anticholinergic
- Anticonvulsants
- Antihistamines
- Antiparkinsonian
- Histamine H2 antagonists
What we can do as Health Care Providers

• Do not assume
• Direct Questioning/Open ended
• Normalize Patient’s Concerns
• Rephrase, Clarify, Use lay mans terms
• Start with less sensitive topics
• Be comfortable talking about sex
• Educate
• Set aside personal beliefs
• Make it a part of evaluation
• Listen
• Recognize your limits—you don’t have to be an expert
• Be open and receptive
• Validate the importance of sexuality and intimacy
• You don’t to approve or adopt their ideas
Rediscovering Intimacy

- Have Fun
- Communicate
- Try different positions
- Try other forms of intimacy beside intercourse
- Weight loss
- Self Stimulation
- Read books
- Try medications for dysfunction
- Treat Hormonal Imbalances

- Avoid tobacco or alcohol
- Take pain meds before sex if needed
- Treat Depression
- Lubricants
- Discover the “senses”
- Touch
- Change Medications if this is the cause
- Take a trip
- Videos
- Toys
Which Sexual Practices are ok?

- Oral Sex
- Sex Toys
- Positions
- Kissing
- Anal Sex
- Frequency
Treatment of Erectile Dysfunction

Pharmacologic
Vascular Procedures
Penile prosthesis
Pump/Vacuum Device
Urology Consult
Urethral Suppository
Pharmacologic Treatment of Erectile Dysfunction

- **Cialis**
  10mg 30 min prior to intercourse
  5-20mg
  Half Life is 17.5 hrs

- **Levitra**
  10mg 1 hour prior to intercourse
  5-20mg
  Half Life is 4-5 hrs

- **Viagra**
  50mg 1 hour prior to intercourse
  25-100mg
  Half Life is 4 hrs
Sexually Transmitted Diseases

Risk for the Transplant Recipient
Chlamydia—Rates by Sex, United States, 1991–2011

NOTE: As of January 2000, all 50 states and the District of Columbia have regulations that require the reporting of chlamydia cases.
The total rate of chlamydia for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 454.1 per 100,000 population.
Chlamydia—Rates by Race/Ethnicity, United States, 2002–2011

Rate (per 100,000 population)

NOTE: Error bars indicate 95% confidence intervals.

Gonorrhea—Rates, United States, 1941–2011

Rate (per 100,000 population)
Gonorrhea—Rates by State, United States and Outlying areas, 2011

NOTE: The total rate of gonorrhea for the United States and outlying area (Guam, Puerto Rico, and Virgin Islands) was 103.1 per 100,000 population.
Gonorrhea—Rates by Age and Sex, United States, 2011

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<tr>
<th>Age</th>
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Gonorrhea—Rates by Race/Ethnicity, United States, 2002–2011

Rate (per 100,000 population)

- Blacks
- American Indians/Alaska Natives
- Hispanics
- Whites
- Asians/Pacific Islanders
Syphilis—Reported Cases by Stage of Infection, United States, 1941–2011

Cases (in thousands)

Year

Total Syphilis

Early Latent

Primary and Secondary
Primary and Secondary Syphilis—Rates by Sex and Male-to-Female Rate Ratios, United States, 1990–2011
Primary and Secondary Syphilis—Rates by State, United States and Outlying Areas, 2011

NOTE: The total rate of primary and secondary syphilis for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 4.5 per 100,000 population.
Primary and Secondary Syphilis—Rates by Age and Sex, United States, 2011

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Women

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<tr>
<td>Total</td>
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Primary and Secondary Syphilis—Rates by Race/Ethnicity, United States, 2002–2011

Rate (per 100,000 population)

Year

* HPV = human papillomavirus.

**NOTE:** Error bars indicate 95% confidence intervals. Both high-risk and low-risk HPV types were detected in some females.

Genital Warts—Initial Visits to Physicians’ Offices, United States, 1966–2011

Visits (in thousands)

Year


NOTE: The relative standard errors for genital warts estimates of more than 100,000 range from 18% to 30%.

Genital Warts—Prevalence Among Sexually Transmitted Disease (STD) Clinic Patients by Sex, Sex of Partners, and Site, STD Surveillance Network (SSuN), 2011

Prevalence, %

*MSM*=men who have sex with men; *MSW*=men who have sex with women only.
Trichomoniasis and Other Vaginal Infections—Women—Initial Visits to Physicians’ Offices, United States, 1966–2011

NOTE: The relative standard errors for trichomoniasis estimates range from 16% to 27% and for other vaginitis estimates range from 8% to 13%.

NOTE: The relative standard errors for genital herpes estimates of more than 100,000 range from 18% to 30%.

Trichomoniasis and Other Vaginal Infections—Women—Initial Visits to Physicians’ Offices, United States, 1966–2011

**Visits (in thousands)**

- **Trichomoniasis**
  - Note: The relative standard errors for trichomoniasis estimates range from 16% to 27%.

- **Other Vaginitis**
  - Note: The relative standard errors for other vaginitis estimates range from 8% to 13%.

Birth Control After Transplant
Birth Control Options

- Oral contraceptives
- IUD
- Condoms
- Spermicides
- Sponge
- Diaphragm

- Male Sterilization
- Female Sterilization
- Nuvaring
- Evra Patch
- Withdrawal
Combination Oral Contraceptive Pill and Contraindications

- CAD
- HTN
- Diabetes
- Older Age (>35)
- Smoker
- Hx of DVT
- HX of Ischemic Heart Disease
- Solid Organ Transplant <2 yrs or with complications
- Hyperlipidemia
- Stroke
- Afib
- PH
- Hx of Breast CA
- Diabetic nephropathy, retinopathy, neuropathy
- Cirrhosis
- Hepatoma
Birth Control After Transplant

- Combined Oral Contraceptive Pills
- Progesterone only pills
- Sterilization (surgical risks)-vasectomy/tubal ligation
- IUD
- Depoprovera
- Condoms
- Spermidices
- Sponge
- Diaphragm
Physiologic Response to Pregnancy

- Cardiovascular-increase in C.O. and HR
- Renal-GFR increases 30-50% causing decline in BUN and CR. Dilated Ureters
- Respiratory-Change in lung function
  - increase in TV, minute vol., RR, Ph, O2 consumption
  - residual vol & capacity, inspiratory/expiratory reserve, PCO2 decreases
  - hyperemia and edema of resp. tract
- GI/Liver-Decrease in GI motility, Alk Phos rises in 3rd trimester 2-3x the normal.
- Endocrine-Thyroid function increases-palpatations, tachycardia, excessive sweating, enlarged thyroid gland, emotional instability. Increased need for insulin.
Immune System During Pregnancy

• **Adaptive Immunity (Cell mediated immunity weakens)**
  - T cell concentration decreases (r/t elevated progesterone and estrogen)
  - Certain chemicals such as IL-2 and interferon gamma could be harmful
  - CD4 + T cells decreases/ CD8 + T cells increase at end of pregnancy

• **Innate Immunity Strengthens**
  - slight increase in WBC to 9-12,000-marked leukocytosis of >20,000 during labor and few days post partum
  - Monocytes increase
  - Granulocytes increase (neutrophils, eosinophils, basophils)
  - Increase in natural killer cells in decidua of uterus
Immune System During Pregnancy

- Uterine Tissue is rich in maternal immune cells
- Hormonal Environment Creates that of local suppression of cell mediated immunity
Risk Associated with Pregnancy Post Transplant

- Increased Risk of Infections
- High blood pressure
- Diabetes
- Graft Dysfunction
- Premature Birth
- Low Birth Weight
- Risk of Congenital Malformations to fetus
- Intrauterine Growth Retardation
Caring for the Pregnant Transplant Patient

- Recommend good health for 2 years before conceiving
- High Risk OB
- Stable Graft Function/Free of Infection
- Monitor Blood Pressure
- Rubella Vaccine before Pregnancy
- Monitor Weight
- Monitor for Gestational Diabetes
- Monitor Kidney Function
- Vaginal Delivery Preferred
- Increase dose of Steroids at Delivery
- Avoid Breastfeeding
- Avoid ACE inhibitors and angiotensin receptor blockers
Ethical Considerations of Pregnancy and Transplant

• Mother may not live to raise child
• Risk to mother and fetus
• Many “unknowns”
Immunosuppressive Medications

- Many of the medications were tested at doses 2-3x higher than what is used clinically
- Many of the drugs have been studied together
- Steroids are low risk
- Imuran- documented newborn thymic atrophy, leukopenia, anemia, thrombocytopenia, chromosome aberrations, and reduced IGG levels.
- CSA- Fetal Growth Restriction
- Cellcept- risk at clinically relevant doses animal studies showed malformations, intrauterine death or growth retardation.
- Tacrolimus-renal function at risk
- Sirolimus-increased toxicity when used with calcineurin inhibitors.
- OKT3, Antithymocyte globulin, Zenapax—no animal reproductive studies done.
NTPR

• Data Taken from National Transplant Pregnancy Registry
  -Established in 1991 at Thomas Jefferson University
  -Research Coordinator-Lisa Coscia
  -Data looks at short and long term outcomes in all organs in U.S., Canada, and Puerto Rico
  -2,200 pregnancies in 1,261 recipients and 1,297 pregnancies fathered by 844 male recipients.
# Immunosuppressive Medication

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<th>Drugs</th>
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<td>Prednisone</td>
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<tr>
<td>Cyclosporine</td>
<td>C</td>
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<tr>
<td>Azathioprine</td>
<td>D</td>
</tr>
<tr>
<td>Mycophenolate Mofetil</td>
<td>D</td>
</tr>
<tr>
<td>Tacrolimus</td>
<td>C</td>
</tr>
<tr>
<td>Sirolimus</td>
<td>C</td>
</tr>
<tr>
<td>OKT3</td>
<td>C</td>
</tr>
<tr>
<td>Antithymocyte globulin</td>
<td>C</td>
</tr>
<tr>
<td>Daclizumab</td>
<td>C</td>
</tr>
<tr>
<td>Basiliximab</td>
<td>B</td>
</tr>
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</table>

A=Safe in Pregnancy, B=Usually Safe but benefits must outweigh risks, C=Safety has not been established, D=Unsafe, X=Contraindicated
### NTPR Annual Report

<table>
<thead>
<tr>
<th>Organ</th>
<th>Recipient</th>
<th>Pregnancies</th>
<th>Outcomes</th>
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<td>1576</td>
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<tr>
<td>Liver</td>
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<td>Liver-Kidney</td>
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<tr>
<td>Liver-Heart-Kidney</td>
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<tr>
<td>Liver-Intestine-Kidney</td>
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NTPR Entries as of December 2012
## NTPR Annual Report

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<th>Organ</th>
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<tr>
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NTPR Entries as of December 2012
## NTPR Annual Report

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<th>Maternal Factors</th>
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<tr>
<td><strong>Hypertension During Pregnancy</strong></td>
<td>58%</td>
<td>62%</td>
<td>28%</td>
<td>39%</td>
<td>52%</td>
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<td><strong>Diabetes During Pregnancy</strong></td>
<td>9.5%</td>
<td>3%</td>
<td>8.4%</td>
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<td>26%</td>
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<tr>
<td><strong>Infection During Pregnancy</strong></td>
<td>21%</td>
<td>39%</td>
<td>24%</td>
<td>17%</td>
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<td>40%</td>
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<tr>
<td><strong>Preeclampsia</strong></td>
<td>31%</td>
<td>29%</td>
<td>21%</td>
<td>20%</td>
<td>5%</td>
<td>40%</td>
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<tr>
<td><strong>Rejection During Pregnancy</strong></td>
<td>1.3%</td>
<td>5.4%</td>
<td>4.9%</td>
<td>9.6%</td>
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<tr>
<td><strong>Graft Loss Within 2 years of Delivery</strong></td>
<td>6.9%</td>
<td>11%</td>
<td>4.7%</td>
<td>1.7%</td>
<td>14%</td>
<td>20%</td>
</tr>
</tbody>
</table>
NTPR Report and MPA Exposure

- 68 pregnancies/98 outcomes
- **Structural Malformations -23%**
  - cleft palate
  - microtia
  - facial malformations
  - hypoplastic nails, shortened fingers
  - duodenal atresia
  - atrioventricular canal defect
  - Tretalogy of Fallot
  - anomalous pulmonary venous return
  - 4 fetal deaths

- **Spontaneous Abortions**
NTRP Annual Report and Kidney Transplant

• All recipients maintained adequate kidney -- Cr ranging from 0.9-1.4
• Kidney recipients have successful outcomes
• Most recipients were >2yrs out from tx
• Preeclampsia does not effect Graft Effect
NTPR Report and Liver Transplant

• > 3 year out from transplant
• Pregnancy after liver transplant is well tolerated
• 7 pt’s--who received live donor and 13 pregnancies on CNI--no HTN, No Diabetes, No Preeclampsia, No rejection
NTPR Report and Pancreas-Kidney Recipients

• Pregnancy >2 yrs post tx
• 11 recipients had graft loss 2 yrs post partum
• Overall pregnancy post Pancreas-Kidney tx is successful
• Low incidence of insulin use during pregnancy
NTPR Report and Heart Transplant Recipients

- Pregnancy >4yrs after transplant
- 70% adequate graft function post partum, 28% died, 2% decreased graft function
- Heart Recipients are able to maintain pregnancy with live birth
- 5 Heart/Lung Recipients--3 have died
NTPR and Lung Transplant Recipients

• 13 of 21 Recipients report adequate graft function, 2 reduced function, and 5 deaths
• 16 surviving children doing well
• More rejection seen in pt’s transplanted prior to 1996--CSA based
• Lung Transplant Recipients are able to have successful pregnancies but data is limited.
NTPR Data

- Children exposed to CSA/FK show no cognitive/physical impairment
- Breastfeeding???, 125 children total were breast fed
Summary

• Most patients report improved intimacy after transplant
• There are treatments for sexual dysfunction after transplant
• It is important that we as health care providers have open communication regarding sexuality
• Birth Control Options are available for use post transplant
• Although High Risk, Post Transplant patients can have successful pregnancy’s with careful monitoring
• There are still many unknown’s about the immune system and pregnancy and it’s effect on the post transplant patient
• There are ethical issues to be considered in pregnancy after transplant