Advances in Lung Transplantation: A Patient Guide

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Outline

- The past
  - History of Transplantation

- The present
  - Recent Advances

- The future
  - Current Research at Columbia
History of Lung Transplantation

The Past
History of Lung Transplantation

- 1963
  - First attempt at lung transplantation
  - Patient lived for 18 days

- 1960s – early 1980s:
  - 45 attempts at lung transplantation
  - Longest survivor: 10 months
History of Lung Transplantation

- 1982
  - First report of long-term success (heart-lung)
- 1986
  - First successful double lung transplantation
  - Both lungs together attached at the trachea
- 1989
  - First successful double lung transplantation
  - One lung at a time
NUMBER OF LUNG TRANSPLANTS REPORTED
BY YEAR AND PROCEDURE TYPE

NOTE: This figure includes only the lung transplants that are reported to the ISHLT Transplant Registry. As such, this should not be construed as representing changes in the number of lung transplants performed worldwide.
ADULT LUNG TRANSPLANTATION

Survival comparisons by era
1988-94 vs. 1995-99: p = 0.0294
1988-94 vs. 2000-6/03: p <0.0001
1995-99 vs. 2000-6/03: p <0.0001

1988-1994: 1/2-life = 3.9 Years; Conditional 1/2-life = 7.0 Years
1995-1999: 1/2-life = 4.5 Years; Conditional 1/2-life = 7.0 Years
2000-6/2004: 1/2-life = 5.0 Years; Conditional 1/2-life = 5.3 Years

ISHLT
J Heart Lung Transplant 2006;25:880-892
Question:
Why don’t people live longer after a lung transplant?
Answer: There are complications after transplantation

- Infection
- Rejection
  - Acute rejection
  - Chronic rejection (BOS)
- Cancer
- Heart disease
Question:

How can we help prevent and treat these problems?
Answer:

- **Patients:**
  - Take your medicine
  - Adhere to lifestyle recommendations
  - Call us immediately with any new problems

- **Doctors:**
  - Do all that stuff, and
  - Study new treatments
Recent Advances in Lung Transplant Care

The Present
FACT

- 1 out of 2 lung transplant patients develop chronic rejection (also called BOS) within 5 years of transplantation
- There are very few treatments for BOS
NEW STUDY

- **Inhaled cyclosporine**
  - The active ingredient in Neoral
  - May cut the risk of chronic rejection by half!
  - Preliminary study
    - Small study at one center
    - Inhaled cyclosporine is not available (Don’t try this at home!!!)
NEW STUDY

- **Everolimus**
  - A new immunosuppressant
  - May help prevent chronic rejection
    - 10% lower risk in the first year
  - Preliminary study
    - No difference in chronic rejection after 1 year
NEW STUDIES

- **Azithromycin** (Zithromax)
  - May slow the progression of chronic rejection
  - Preliminary studies only
  - No “randomized” studies yet
    - Randomized studies provide the strongest evidence in favor or against new treatments.
FACT

- Bone health gets worse after transplantation
- 3 out of 4 lung transplant patients have osteoporosis!!
NEW STUDY

- **Resistance exercise**
  - Helps improve bone density
  - Should be done with medication
    - Fosamax, Boniva, etc.
  - Doesn’t have to end with rehab ends
    - Keep exercising!
That’s it?!
What you can do

- Write to your representative and senators
  - Increase National Institutes of Health funding!!
- Consider participation in research studies
  - We owe everything we know about medicine to patients who volunteer in research studies.
  - Ask your pulmonologist and lung transplant doctor about research studies!!!
Key Concepts about Research

- Do no harm
- 100% voluntary
- "Informed consent"
- Experimental therapy!!!
Current Research Studies at Columbia

The Future
Ongoing studies at Columbia: Before Transplantation

- Viagra for COPD/emphysema
  - 9 week study for patients with emphysema
    - 4 weeks of Viagra
    - 4 weeks of placebo
    - 1 week with no pills
  - We are trying to see if Viagra helps breathing
  - Men and women are eligible
Ongoing studies at Columbia: Before Transplantation

- Bronchial fenestration for COPD/emphysema (EASE study)
  - Bronchoscopic procedure
  - Like a lung volume reduction without surgery
  - Decompress big lungs
Ongoing studies at Columbia: Before Transplantation

- Aspirin and Simvastatin for Pulmonary Hypertension
  - We are studying these drugs as treatments for pulmonary hypertension
  - This is the 1st NIH-funded clinical trial in pulmonary hypertension
Ongoing studies at Columbia: Before Transplantation

- Pirfenidone for Pulmonary Fibrosis
  - Treatment trial of pirfenidone
  - Enrollment is closed
Ongoing studies at Columbia: After Transplantation

- Genetic Analysis to Predict Rejection of Lung Transplants (LARGO)
  - This study is looking for a blood test to diagnose rejection
  - Might save people from having bronchoscopies in the future!!
Ongoing studies at Columbia: After Transplantation

- Evaluating the Safety and Efficacy of Intravenous Immunoglobulin
  - We are studying whether an infusion of IVIG helps prevent infections after transplantation
Ongoing studies at Columbia: After Transplantation

- Genetic Predictors of Primary Graft Dysfunction after Lung Transplant
  - 10-20% of the time, the lungs don’t work right away after transplantation.
  - We are trying to predict who will develop this complication
  - This study will lead to studies of new treatments for this complication
Summary

- We’ve come a long way…
  - But there is a long way to go.
- New treatments are on the horizon
- Consider enrolling in research studies
  - Be fully informed
  - Understand the risks
  - 100% voluntary