



Lung Transplantation: The Relationship between Microbes and Frailty

Ref. 2018-16

Original title: Lung microbiota signatures in the light of frailty in lung transplant recipients: bacteria-virus-host interactions from bench to bedside

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Summary

The relationship between the microorganisms (bacteria, viruses) in lung transplants, the patient's gene expression and his/her frailty could enable early recognition of the risk of rejection. This would be advantageous in evaluating whether the manipulation of the micro-organisms in transplanted lungs could increase the stability of the transplant.



Dr. et Dr. med. Angela Koutsokera, Hauptantragstellerin der vorliegenden Studie

Background – Micro-organisms and Frailty

Human lungs are naturally inhabited by micro-organisms (microbiota). These microbial communities influence their hosts, even when this does not result in an infectious disease. Previous research into lung transplants has proven that bacterial communities interact with the patient's immune system. However, the role played by viruses in this context is still unclear.

There is also no current medical parameter that would reconcile the microbiota findings with the clinical findings from the post-operative examination. "Frailty", a medical "measurement" of a person's infirmity, could fill this gap.

Objectives and Methods – Natural Protein as a Medication

The study planned by Angela Koutsokera and her team aims to examine post-operative lung transplant patients. To this end, they will analyse the micro-organisms (bacteria and viruses) that are found in the lung transplants. Additionally, the researchers will study the gene expression of patient cells obtained in post-operative examinations.

Researchers will integrate medical findings which are routinely collected during post-operative examinations of transplant recipients into a "frailty index" that has been specially designed for these patients. All of the results will be checked for commonalities using computer statistics.

Significance – Better Chances for Lung Transplant Recipients

The objective of this project is to reconcile the results from the examination of microbiota with the gene expression and medical findings. The research group expects the results to provide indications as to how the manipulation of lung microbiota can improve the stability of lung transplants. This approach has the potential to optimise post-operative care for transplant patients by identifying high-risk patients early and providing them with the appropriate care.

Length of the Project

This project will begin on 1 September 2018 and is expected to last two years.

	Amount
Total research budget	CHF 170'000
Grants promised/received by third parties	CHF 0
Grants pending from third parties	CHF 0
Grants being sought from the Swiss Lung Association	CHF 170'000
Amount to be acquired by researchers	CHF 0
Contribution from Research Fund of the Lung Association	CHF 55'000
Donations required from third parties	CHF 115'000

