Dr Georges MOUTON MD

Functional Medicine

QUOTE GM #29

Title

2018-06-14

Created

IMPROVING DERMATITIS WITH COMMENSAL SKIN BACTERIA

JCI Insight. 2018 May 3;3(9). pii: 120608. doi: 10.1172/jci.insight.120608. [Epub ahead of print]

First-in-human topical microbiome transplantation with Roseomonas mucosa for atopic dermatitis.

Myles IA[1], Earland NJ[1], Anderson ED[1], Moore IN[2], Kieh MD[1], Williams KW[1], Saleem A[1], Fontecilla NM[1], Welch PA[1], Darnell DA[1], Barnhart LA[1], Sun AA[1], Uzel G[1], Datta SK[1].

Author information

1 Laboratory of Clinical Immunology and Microbiology, National Institute of Allergy and Infectious Diseases (NIAID), NIH, Bethesda, Maryland, USA.
2 Infectious Disease and Pathogenesis Section, Comparative Medicine Branch, NIAID, NIH, Rockville, Maryland, USA.

Abstract

The underlying pathology of atopic dermatitis (AD) includes impaired skin barrier function, susceptibility to Staphylococcus aureus skin infection, immune dysregulation, and cutaneous dysbiosis. Our recent investigation into the potential role of Gram-negative skin bacteria in AD revealed that isolates of one particular commensal, Roseomonas mucosa, collected from healthy volunteers (HVs) improved outcomes in mouse and cell culture models of AD. In contrast, isolates of R. mucosa from patients with AD worsened outcomes in these models. These preclinical results suggested that interventions targeting the microbiome could provide therapeutic benefit for patients with AD. As a first test of this hypothesis in humans, 10 adult and 5 pediatric patients were enrolled in an open-label phase I/II safety and activity trial (the Beginning Assessment of Cutaneous Treatment Efficacy for Roseomonas in Atopic Dermatitis trial; BACTERiAD I/II). Treatment with R. mucosa was associated with significant decreases in measures of disease severity, topical steroid requirement, and S. aureus burden. There were no adverse events or treatment complications. We additionally evaluated differentiating bacterial metabolites and topical exposures that may contribute to the skin dysbiosis associated with AD and/or influence future microbiome-based treatments. These early results support continued evaluation of R. mucosa therapy with a placebo-controlled trial.

KEYWORDS: Allergy; Dermatology; Immunology; Skin

PMID: 29720571 DOI: 10.1172/jci.insight.120608

"*The underlying pathology of atopic dermatitis includes impaired skin barrier function, susceptibility to Staphylococcus aureus skin infection, immune dysregulation, and cutaneous dysbiosis. Our recent investigation into the potential role of Gram-negative skin bacteria in atopic dermatitis revealed that isolates of one particular commensal called* **Roseomonas mucosa**, *collected from healthy volunteers, improved outcomes in mouse and cell culture models of atopic dermatitis.*"

"*Treatment with* **Roseomonas mucosa** *was associated with significant decreases in measures of disease severity, topical steroid requirement, and Staphylococcus aureus burden. There were no adverse events or treatment complications.*"