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Scoping Review Protocol: Changes in Skin Microbiome Post-Dermatological Interventions V.2

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We use this protocol and it's working

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Keywords: Skin Microbiome, microbiome, dermatology, Dysbiosis, common dermatological procedures on the skin microbiome, skin microbiome, various dermatological intervention, various dermatological interventions such as graft, common dermatological procedure, changes in skin, involving topical treatment, topical treatment, microbiome composition, skin, micropigmentation, systemic intervention

Abstract

This scoping review protocol aims to systematically map the existing literature on the effects of common dermatological procedures on the skin microbiome. Adhering to PRISMA-ScR guidelines, we will conduct a comprehensive search in PubMed for studies published from 2007 onwards, focusing on various dermatological interventions such as grafts, laser surgery, and micropigmentation, while excluding studies involving topical treatments or systemic interventions. Screening will identify primary research articles that report changes in skin microbiome composition pre- and post-intervention. The review will provide a narrative summary and visual data representations, identifying key findings, research gaps, and implications for future research and clinical practice.

Introduction

- 1 The skin microbiome is an ecosystem of microorganisms residing on the human skin which play a crucial role in maintaining skin health and protecting against pathogens(1). This community includes bacteria, fungi, viruses, and mites, which interact with each other and the host forming a dynamic equilibrium. Disruptions of this balance can lead to various dermatological conditions, including acne(2), atopic dermatitis(3), and psoriasis (4). Recent advances have highlighted the significant impact of dermatological interventions, such as topical antibiotics on the composition and function of the skin microbiome(5). However, there remain gaps in the understanding of how dermatologic procedures affect the proximal skin microbiome. Here we propose a protocol for undertaking a scoping review aimed at capturing the current research on the effects of common dermatological procedures on the skin microbiome.

Research Question

- 2 We will perform a scoping review to describe the available evidence on the changes in skin microbiome composition following dermatological procedures.

Methods

- 3 This protocol will follow the guidelines held by the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) checklist(6).
- 3.1 The search strategy entails query of the PubMed database of article published from 2007 to the present. Key terms included in the search using the advanced search tool as follows: ((acne surgery) OR (excisional biopsy) OR (excision) OR (debride) OR (injection) OR (tattoos) OR (micropigmentation) OR (graft) OR (laser surgery) OR (electrosurgery) OR (cryosurgery) OR (chemosurgery) OR (surgical curettement) OR (phototherapy) OR (dermabrasion) OR (chemical peel) OR (chemical cauterization) OR (mohs) OR (skin peel) OR (electrolysis) OR (radiation)) AND (skin microbiome).
The search strategies were based on dermatology CPT/HCPSCS procedures.
Did not include interventions involving topical creams, ointments, emollients, and moisturizers.
- 3.2 **Screening:**
After the initial search, each paper's titles, abstracts, and keywords are to be screened by one reviewer who selects papers matching the inclusion criteria.

Inclusion criteria:
Published 2007 and after (HMP launched in 2007).

The term “skin microbiome” or “skin microbiota” in the title, abstract or keywords.
Must discuss physical dermatological interventions (see definition).

Exclusion criteria:

Must be written in English.

Can not be a systematic review, scoping review, book or book chapter.

Excluded if reporting on bacteriotherapy or use of prebiotics, or post-biotics.

Excluded if intervention is topical ointments, creams, emollients, and moisturizers.

Excluded if intervention is intravenous, oral, or other systemic interventions.

Must evaluate the effect on skin microbiome and not be a treatment for dysbiosis or other related issues.

3.3 Eligibility:

A full paper review is conducted on the remaining papers for eligibility based on the exclusion criteria. Papers are categorized into 3 groups by one reviewer: evidently excludable, perhaps excludable, includable. A second arbiter reviews the perhaps excludable and includable group and makes suggestions. The initial reviewer accepts the suggestions or, if suggestions are rejected, comes to an agreement with the arbiter. If no agreement can be reached, a third party will settle all disagreements.

3.4 Data Lines:

From the included articles reviewers will extract data from the articles following a pre-specified extraction sheet. The following data lines will be extracted from each paper into an MS Excel spreadsheet:(1) author;(2) year of publication;(3) dermatological intervention description;(4) study subjects;(5) study duration;(6) skin condition;(7) outcome.

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