Skin Barrier Dysfunction in Lymphedema

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May 1, 2023

AAPS 101st Annual Meeting
Disclosures

• The authors have no financial disclosures.
Lymphedema

Hypothesis: Lymphedema results in skin barrier dysfunction

Adapted from Lopez et al., Surg.Onc., 2020
Methods

(Sample)

LE patient
AF
AF + IL4nab

Lymphatic arm fluid (AF)

(Analysis)

Immunofluorescence (IF)
Western Blot (WB)
PCR

LE Mouse model
S.epi
Lymphedema results in skin barrier dysfunction

**Transepidermal Water Loss**

A.

**Percentage Water Content**

B.

**TEWL:PWC**

C.

R=0.523

p= <0.0001
Skin barrier proteins are downregulated in LE

1A. Images showing downregulation of various skin barrier proteins in LE compared to normal (N).

1B. Graphs displaying quantification of downregulation of ZO-1, CLDN-1, CLDN-4, and FLG in LE.
Skin barrier proteins are downregulated in LE

2A.

2B.
Lymphatic fluid promotes barrier dysfunction by TH2 mechanisms

3A.

3B.

3C.
Skin commensal bacteria accelerate barrier dysfunction in LE mouse model
Skin barrier impairment contributes to LE pathogenesis

Lymphatic fluid promotes skin barrier and keratinocyte dysregulation via IL-4 mediated inflammation

In a murine model of LE, *S.epidermidis* colonization accelerates skin barrier dysfunction
Thank you

Memorial Sloan Kettering
Cancer Center