The vaginal microbiota after excisional treatment for cervical intraepithelial neoplasia

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Disclosures

• No financial relationships or conflict of interest to disclose
Vaginal microbiome of reproductive-age women

396 asymptomatic, sexually active women

CST I – *L. crispatus*

CST II – *L. gasseri*

CST III – *L. iners*

CST IV – Lactobacillus spp. deplete, high diversity

CST V – *L. jensenii*
Vaginal microbiota and HPV infection

- Clearance
  - CST II

- Acquisition
  - CST IV

- Persistence
  - CST IV & CST III

Decreased lactobacillus
Cervical intraepithelial neoplasia disease progression is associated with increased vaginal microbiome diversity

A. Mitra, D.A. MacIntyre, Y. S. Lee, A. Smith, J. R. Marchesi, B. Lehne, R. Bhatia, D. Lyons, E. Paraskevaidis, J. V. Li, E. Holmes, J. K. Nicholson, P. R. Bennett & M. Kyrgiou

10%  21%  28%  40%
Low CST IV
90%  79%  72%  60%
Highest lactobacillus  Lowest lactobacillus

Normal epithelium  HPV infection  koilocytosis  CIN1  CIN2  CIN3  Invasive carcinoma
Does excisional treatment alter the vaginal microbiome?

- Cause or consequence of disease?
- Associated with future outcomes
  - Pregnancy-related complications
  - Disease recurrence
Recruitment

- St Mary’s Hospital, London
- 103 women treated for HG disease
On the day of treatment...

Microbiome swab

Excisional treatment

6 months later
Pre-treatment CST

n=103 paired samples

Post-treatment CST

Post-treatment status

Normal = 75%
BNC = 18%
Low-grade = 7%
HPV – ve = 81%
HPV +ve = 19%

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No change in richness or diversity

Richness

- Pre
- Post

p=0.6490

Diversity

- Pre
- Post

p=0.2159
Streptococcus agalactiae

Lactobacillus spp.

Streptococcus agalactiae
3x ↑ risk of future invasive cervical cancer, up to 25 yrs

↑ inflammatory cytokines
CST1 post
CST1 control
CST3 post-tx
CST3 control
CST4 post-tx
CST4 control

Log10 IL-8 pg/ml

0.1
1
10
100
1000
10000
100000

IL-8
Does the vaginal microbiota play a role in the development of cervical cancer?

MARIA K YRGIOU, ANITA MITRA, and ANNA-BARBARA MOSCICKI
LONDON, UK AND LOS ANGELES

RESEARCH ARTICLE
PREGNANCY

The vaginal microbiome during pregnancy and the postpartum period in a European population

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Conclusion

• No change in gross structure of vaginal microbiome after excisional treatment of CIN

• Remains higher diversity compared to normal healthy controls

• Link to increased risk of future adverse obstetric & oncological outcomes?
The future?

Probiotics

The present...

Health promotion
Thank you for your attention!

Dr David MacIntyre
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