MeD-seq, a novel assay for genome-wide DNA methylation profiling in developing predictive biomarkers of gynaecological cancer and endometriosis

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1. To study the possibility to detect gynaecological malignancies and endometriosis in Pap smears and blood of women with gynaecological cancer or endometriosis, using MeD-seq and biomarker assays, in order to develop new reliable screening methods...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Other condition
Study type	Observational invasive

Summary

ID

NL-OMON51586

Source
ToetsingOnline

Brief title
MeD-seq, a novel assay for genome-wide DNA methylation

Condition

- Other condition
- Cervix disorders (excl infections and inflammations)

Synonym
cervical cancer, ovarian cancer. uterine cancer and endometriosis, vulva cancer

Health condition

all female genital cancers

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus MC, Universitair Medisch Centrum Rotterdam
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: DNA methylation, HPV, MeD-seq, Pap smears

Outcome measures

Primary outcome

1. To develop a test for early detection of female genital cancer and

endometriosis using Pap smears and blood.

2. The DNA methylation atlas of normal female genital cell types.

Secondary outcome

Development of a DNA methylation atlas of the healthy female genital cell types

(vulva, vagina, cervix, uterus, tubes and ovaries) using the MeD-seq

technology.

Study description

Background summary

To study epigenetic gene regulation with DNA methylation (MeD-seq) in gynaecological cancers and endometriosis enabling early-stage detection of gynecological cancers and endometriosis with the MeD-seq method itself or with a biomarker assay based on the MeD-seq data. The test will eventually be performed on blood and cervical swabs.
To make this possible, the healthy tissues that will be isolated are crucial to determine the background signal of DNA methylation and to distinguish cancer-related DNA methylation changes.
In addition, these healthy tissues are very interesting to use for a much longer-term goal of mapping the DNA methylation of every cell type in the human

body (DNA methylation atlas).
This DNA methylation atlas will facilitate determination and origination of cancers whose cell type origin is unknown or unclear (such as e.g. ovarian cancer in this study) and provide new insights into the pathogenesis of these cancers and endometriosis and hopefully leads for research into new treatment methods.

Study objective

1. To study the possibility to detect gynaecological malignancies and endometriosis in Pap smears and blood of women with gynaecological cancer or endometriosis, using MeD-seq and biomarker assays, in order to develop new reliable screening methods for all different gynaecological malignancies and endometriosis.
2. To develop a DNA methylation atlas of the healthy female genital cell types (vulva, vagina, cervix, uterus, tubes and ovaries) using the MeD-seq technology.

Study design

Prospective, longitudinal, observational study with tissue and data collection of
1. Patients with gynaecological cancer or endometriosis will be asked to undergo a Pap smear and a blood test for detecting gynaecological malignancies and endometriosis using the Med-Seq technique (targeted DNA methylation marker analysis) in Pap smears and blood. Patients do not need to undergo an extra examination: the Pap smear will only be taken if the patient is in need for an gynaecological examination for their disease. Blood for research will be taken during their regular blood examination. We will analyse tissue (redundant for pathology) post-surgery.
2. Patients without disease but with an indication for surgery because of a benign disorder. They will be asked whether a small part of their removed tissues (redundant for pathology) may be used to develop the normal tissue and cell type DNA methylation atlas.
3. Healthy women consulting the gynaecology department and needing speculum examination (for example for insertion of an IUD or a Pap smear for population screening of cervical cancer) will be asked to undergo a Pap smear as a reference group for 2.

Study burden and risks

There is no benefit for women participating in this study. They will not receive a result of the tissue/Pap smear/blood collected. The main disadvantage is that they have to undergo a Pap smear (a normal diagnostic test that is done in population screening for cervical cancer) during their gynaecological examination and donate one tube of blood for cf-DNA extraction. The risk of

taking the Pap smear is negligible and the blood collection will be done during routine blood collection.

Contacts

Public
Erasmus MC, Universitair Medisch Centrum Rotterdam

Dr. Molewaterplein 40
Rotterdam 3015 GD
NL
Scientific
Erasmus MC, Universitair Medisch Centrum Rotterdam

Dr. Molewaterplein 40
Rotterdam 3015 GD
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

1. Gynaecological cancer or endometriosis patients>= 18 years undergoing gynaecological examination
2. Healthy women >= 18 years undergoing gynaecological surgery
3. Healthy women >= 18 years undergoing gynaecological examination
4. Written informed consent

Exclusion criteria

1. Women not able to read or understand the PIF (patient information).
2. Women not willing to participate.
3. Other malignancies in the past 5 years, except for basal cell carcinoma of the skin

Study design

Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	12-12-2022
Enrollment:	160
Type:	Actual

Ethics review

Approved WMO Date:	08-12-2022
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)
Approved WMO Date:	10-05-2024
Application type:	Amendment

Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)
Approved WMO Date:	02-09-2024
Application type:	Amendment
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL82201.078.22