Uterine Lavage for diagnosing EOC
an update

Gynecologic Cancer Intergroup
GCIG 2015 Spring Meeting
Chicago, IL US
TRANSLATIONAL RESEARCH COMMITTEE
May 27, 2015
Screening Recommendations
US Preventative Services Task Force

www.uspreventiveservicestaskforce.org

Grade A
There is high certainty that the net benefit is substantial - recommended

Grade: A Recommendation
Screening cervical cancer ages 21 to 65 years with Pap smear every 3 years.
Screening colorectal cancer: fecal occult blood testing, sigmoidoscopy, or colonoscopy, in adults, beginning at age 50

The global battle against cancer won’t be won with treatment alone. Every year, millions of cancer patients could be saved from premature death and suffering if they had timely access to early detection and treatment. WHO, 2014
Search for a Method for STIC-Detection
Lavage of the Uterine Cavity
100% (24 of 24) Endometrial cancers
41% (9 of 22) Ovarian cancers
positive for the respective mutation detected in tumor tissue
Uterine lavage, matched tumor tissue

Massively parallel sequencing (Illumina)

AKT1, APC, BRAF, CTNNB1, EGFR, FBXW7, KRAS, NRAS, PTEN, PIK3CA, PPP2R1A, TP53

Digital droplet PCR (ddPCR)

KRAS, TP53

23 EOCs, 1 uterine carcinosarcoma
1 signet ring carcinoma metastasized in ovaries,
1 ovarian low malignant potential tumor
8 benign tumors

11 EOCs, 1 signet ring carcinoma metastasized in ovaries
Massively parallel sequencing (Illumina)

0.9% - 44.6% mutation rate

16/26 (62%) malignant tumors
1/8 (12.5%) benign tumors

P=0.02, Fisher Exact Probability test, one-tailed
Digital droplet PCR (ddPCR)

12/12 (100%) malignant tumors

0.02% - 39.7% mutation rate

$R^2 = 0.985$
Feasibility Pilot Study  
n = 59 / 1 Fail  
A premenopausal Patient n=26  
B postmenopausal Patient n= 32

**Insertion of Catheter**

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**Dilatation applied**

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**Volume retrieved from 10 ml**

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**Blood stained**

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**Prior adnexal surgery**

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Lavage of the Uterine cavity for the Diagnosis of Ovarian and tubal Carcinoma – Study of sensitivity and specificity - LUDOC II Study

- Lavage at operation of patients with suspicious adnexal mass
- 540 patients, 108 ovarian cancers, 20% malignancy rate
- Sensitivity 80% Specificity 90%
- 115 patients entered by end of may

- Charite University, Berlin, Germany
- Eppendorf University, Hamburg, Germany
- Medical University Vienna, Austria
- Klinikum Essen Mitte, Essen, Germany
- Catholic University, Leuven, Belgium
- Charles University, Pilsen, Czech Republic

https://clinicaltrials.gov ClinicalTrials.gov Identifier: NCT02062697
Pilot study of the Lavage of the Uterine cavity for the Diagnosis of Serous Tubal Intraepithelial Carcinoma – LUSTIC Study - Screening in “high risk women”? AGO 45

- Lavage of BRCA mutation carrier at rrBSO
- Aim 20 STICs/occult Carcinoma
- Extensive examination of tissue – SEE FIM
- 71 patients entered by end of May

- Charles University, Prague, Czech Republic
- Medical University Graz, Austria
- Medical University Vienna, Austria
- Klinikum Essen Mitte, Essen, Germany
- Trinity College, Dublin, Ireland
- Radboud University, Nijmegen, Netherlands
- University College, London, England
- Catholic University, Leuven, Belgium
- European Institute of Oncology, Milano, Italy

https://clinicaltrials.gov ClinicalTrials.gov Identifier: NCT02039388
Lavage of the Uterine cavity for the Diagnosis of Ovarian and tubal Carcinoma – Study of sensitivity and specificity - LUDOC II Study

- Lavage von Patientinnen mit Vd.a. n. ovarii und Operation
- 540 Patientinnen, 108 Ovarialkarzinome, 20% Malignomrate
- Sensitivität 80% Spezifität 90%

- Charite Universität, Berlin – 24
- Eppendorf Universität, Hamburg – 10
- Medizinische Universität Wien – 13
- Klinikum Essen Mitte – 31
- Catholic University, Leuven – 17
- Charles University, Pilsen – 19

https://clinicaltrials.gov ClinicalTrials.gov Identifier: NCT02062697
LUSTIC Study – First case with pathology

• 41 years old BRCA1 mutation carrier
• Serum CA-125 and vaginal sonography - normal
• At laparoscopy: small volume peritoneal carcinomatosis
• At laparotomy: 15mm peritoneal Metastasis at right diaphragm

G2, pT3b, pN0, FIGO IIIB serous ovarian cancer
STICs bilateral at fimbriated end

ddPCR: 16.8%
NGS: 17.3%
TP53 p.V217* mutant fraction
Summary

• Diagnosis of clinical occult serous ovarian cancer is possible
• Earlier detection of serous ovarian cancer
  ▪ Maybe no „stage shift“ BUT
  ▪ Less Tumor burden at diagnosis
  ▪ Improved operability
    → Increase of percentage of optimal debulked patients
    → Less radical procedures

• STIC Detection – Prävention – Proof of principle still missing