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CLOSING CONFERENCE

Cross-border biomarker research of ovarian cancer (CrossBiomark)

28th July 2014.

**Amphitheater, Faculty of Pharmacy, Medical Faculty in Novi Sad
University of Novi Sad,
Novi Sad, Hajduk Veljkova 3.**

Programme

- 10:00 – 10:30 **Registration**
- 10:30 – 10:40 **Opening speech**
Prof. Nikola Grujić, Dean of Faculty of Medicine,
University of Novi Sad, Serbia
- 10:40 – 11:00 **Title: Epidemiological data of new diagnosed ovarian cancer in Vojvodina, Serbia and South Great Plain, Hungary in 2007-2012**
Dr. Aljosa Mandic, Oncology Institute of Vojvodina,
Faculty of Medicine, University of Novi Sad, Serbia
- 11:00 – 11:20 **Title: Developing an new analytic method for detection an phospholipid as potential biomarker in ovarian cancer**
Dr. Robert Berkecz, Department of Medical Chemistry,
Faculty of Medicine, University of Szeged, Hungary
- 11:20 – 12:00 **Closing remarks and discussion**
Dr. Aljosa Mandic, Oncology Institute of Vojvodina,
Medical Faculty, University of Novi Sad, Serbia
Dr. Róbert Berkecz Department of Medical Chemistry,
Faculty of Medicine, University of Szeged
- 12:00-13:00 **lunch and press conference**



Title: Epidemiological data of new diagnosed ovarian cancer in Vojvodina, Serbia and South Great Plain, Hungary in 2007-2012 Dr. Aljosa Mandic, Oncology Institute of Vojvodina, Faculty of Medicine, University of Novi Sad, Serbia

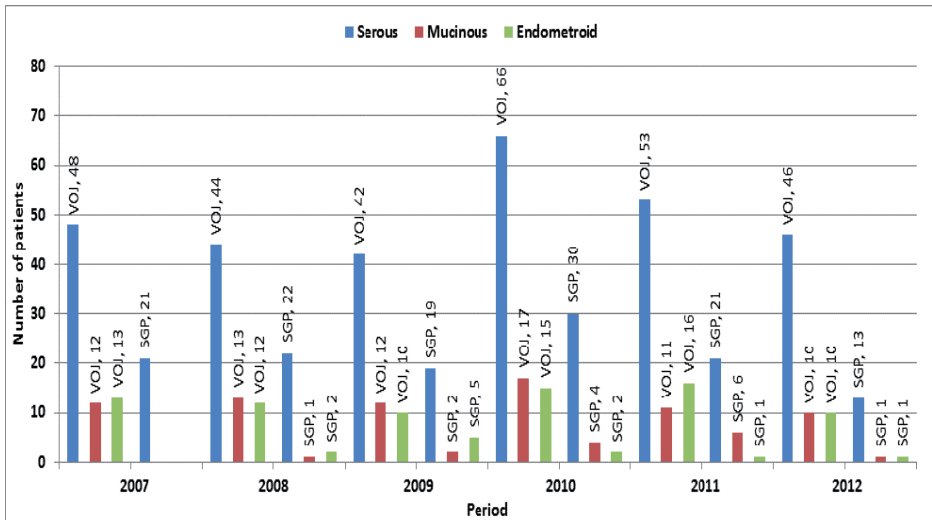
ABSTRACT

Ovarian cancer is among the sixth leading cancers in Vojvodina and the fifth leading cause of cancer death among female population in Vojvodina according to Cancer Registry of Vojvodina in 2010. The majority of ovarian cancer cases are diagnosed at an advanced stage, FIGO stadium III-IV with poor prognosis.

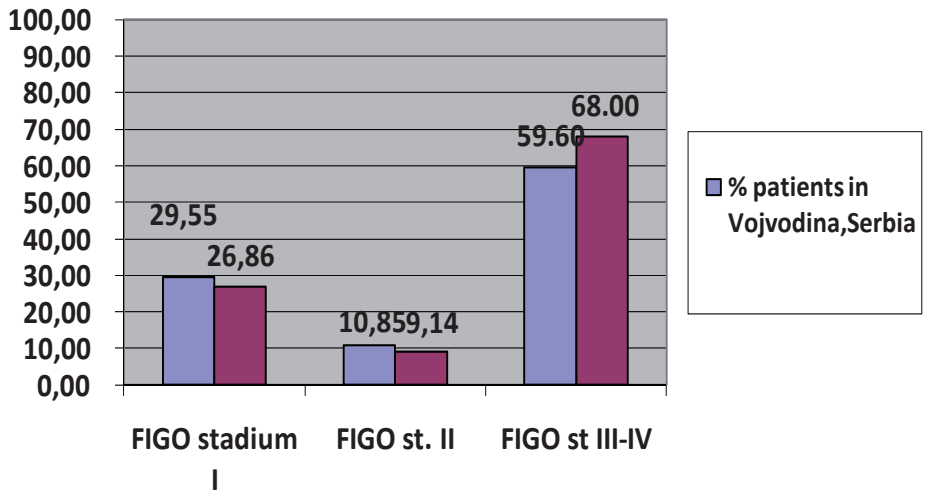
The aim of first goal of the project was evaluation the epidemiological data of new diagnosed ovarian cancer from Hospital registry for malignant disease in Oncology Institute of Vojvodina and Department of Oncotherapy, University of Szeged in South Great Plain region in Hungary, in 2007-2012 period of time.

The most patients were diagnosed in advanced disease, FIGO stadium III-IV, in both regions. The major histopathological epithelial ovarian cancer subtype in both regions was serous ovarian cancer. Graph 1 and 2. Usually age for diagnosed ovarian cancer in females, around the 60 with no statistical significant difference between both region. The trend of advanced disease in our study showed a moderate descending linear trend with no significance statistical difference. The results are comparable and similar with other epidemiological data from the literature.

The lack of efficient screening methods is the major obstacle to improve the prognosis of women affected by this disease. Further investigations and introduction of new technologies applied to medical discoveries offers new hope for finding effective screening policies.



Graph 1. Distribution of the most diagnosed subtype of epithelial cancer in Vojvodina, Serbia and South Great Plain, Hungary in 2007-2012 period.



Graph 3. FIGO stadium of new diagnosed ovarian cancer, in Vojvodina, Serbia and South Great Plain, Hungary in 2007-2012 period.

Title: **Developing an new analytic method for detection an phospholipid as potential biomarker in ovarian cancer**

Dr. Robert Berkecz, Department of Medical Chemistry,
Faculty of Medicine, University of Szeged, Hungary

ABSTRACT

Ovarian cancer is the second most common malignant gynecological cancer. Detecting early stage of the disease is difficult with only 20% of all cases due to a lack of accurate diagnostics. The early detection and the establishing prognosis are very important that can be supported by understanding of molecular process of diseases. Nowadays, there are no reliable biomarker that can be applied for early diagnosis. The most common biomarker is cancer antigen (CA-125), however it can show elevated level in only about 50 percent of early stage cancer cases with high false-positive rate.

Phospholipids (PLs) are important classes of bioactive lipid mediators that have been extensively studied in recent years and have known effects on ovarian cancer cells. Chemically the classification of diverse PLs is based on polar headgroup such as: phosphatidylcholines (PC), phosphatidylethanolamines (PE), phosphatidylinositols (PI), phosphatidylserines (PS), phosphatidyl-glycerols (PG) and phosphatidic acids (PA) where the phosphate group is not derivatised. The phosphate group is bound to the glycerol backbone at sn-3 position, additional hydroxyl groups of glycerol are esterified to the carboxyl groups of two fatty acid chains at sn-1 and sn-2 positions. However, in the case of lyso phospholipids only one fatty acid chain is attached to the sn-1 position of glycerol backbone. The PL classes are further subdivided into three subclasses, such as phosphatidyl, plasmanyl and plasmeryl corresponding to ester, alkyl ether and vinyl ether linkages.

In analytical aspect of PLs, routinely used chromatographic techniques, gas chromatography (GC) and thin layer chromatography (TLC) were applied in previous decades while nowadays two basic strategies are used, first is mass spectrometry (MS) based analysis of PLs which is called “shotgun” method, and the other approach is chromatographic separation followed by MS. Analysis of membrane PLs is challenging both in an identification and quantification point of view for analytical chemist because of the wide range distribution of PLs in tissues and the diverse behavior of different PL classes during the separation and detection process. Amphipathic property of PLs gives opportunity to use different LC techniques such as hydrophilic interaction chromatography (HILIC) as a novel chromatographic separation technique with only a few of published applications for PL analysis.

The primary aim of this research is development of HILIC separation method and combining it with mass spectrometric measurement for qualitative and quantitative analysis of PLs from human plasma. The second goal is the application of the developed analytical method for PL profiling of plasma in ovarian cancer.

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