CA 15129, DiMoPEx
Diagnosis, **Mo**nitoring, **P**revention of **Ex**posure Related Non-Communicable Diseases

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WG1-WG3-WG5-WG7

Asbestos related diseases in Slovenia: the search for molecular biomarkers of risk for developing, progress and treatment response needs to go hand-in-hand with education and raising public awareness

DiMoPEx

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Introduction

Asbestos exposure has been associated with the development of asbestosis, pleural plaques, diffuse pleural thickening and pleural effusion, and several types of cancer. One of the most aggressive and fatal cancers associated with asbestos exposure is malignant mesothelioma (MM). Asbestos was banned by law in Slovenia in 1996, but the number of new cases of MM is expected to increase at least until 2030 due to the long latency period and the fact that asbestos is still present in the environment. As most patients with MM present with advanced disease at the time of diagnosis, the average survival time is 14 months with multimodal treatment. Despite improved survival, response rates to chemotherapy are still only up to 40% (Kovac et al., 2012).
Clinical Institute of Occupational, Transport and Sports Medicine (CIOTSM) at the University Medical Centre Ljubljana, Pharmacogenetics Laboratory at the Institute of Biochemistry, Faculty of Medicine and Institute of Oncology Ljubljana collaborate tightly in research of molecular mechanisms and gene-environment interactions associated with asbestos related diseases and in search for molecular biomarkers of risk for developing, progress and treatment response with the aim of early diagnosis and personalized treatment. All three institutions support and provide education, training and research to undergraduate and graduate students, as well as preclinical and clinical researchers. They are very active in raising awareness on asbestos-related diseases among students, researchers, health care professionals and public. They also collaborate tightly with the Slovenian association of patients with asbestos related diseases.

Research projects

- National research project L3-9129: Molecular epidemiology of asbestos related diseases and screening test for early detection of mesothelioma (2007-2009, PI Dolžan V).
- National research project L3-3648: Molecular epidemiology of asbestos-related diseases and new approaches for an early detection and treatment of mesothelioma (2010-2013, PI Dolžan V)
- National research programme P1-0170: Molecular mechanisms of regulation of cellular processes related to some human diseases,.2014 – 2017, PI Dolžan V)

Grant applications

- National research project application: Serum, genetic and epigenetic markers of risk for developing, progress and treatment response in asbestos related diseases (application, 2016, PI Dolžan V)
- H2020-WIDESPREAD-2016-2017:Teaming Phase 2: Advanced Regional Translation of Excellence into Medical Innovations for Delayed Ageing Phase 2 (ARTEMIDA 2; University of Ljubljana, Karolinska Institutet, EMBL-EBI)

Education

- Graduate programme in medicine, Faculty of Medicine, UL
- Interdisciplinary doctoral programme Biomedicine, UL

Workshops, courses

- International workshop „PHARMACOGENOMICS – From research to clinics: Workshop for high school and university lecturers“, June 8-10 2015, ULFM, Ljubljana, Slovenia.;
- Training course on Pharmacogenomics, November 14 2015, Institute of Biochemistry, ULFM, Ljubljana, Slovenia.;
- International Summer School GENOMIC MEDICINE – Bridging research and the clinic, May 3-7 2016, Hotel Histrion, Portorož, Slovenia.

Dissemination and raising awareness

- The Pharmacogenetics Laboratory Open Day Events: 2013, 2014 and 2015.
- AZBEST, NIKOLI DOKONČANA ZGODBA (L'AMIANTO, UNA STORIA INFINITA (Asbestos, un unfinished story); International Symposium, 23. 10. 2015, Vipože, Slovenia. VD, MDF)
- Kemične snovi na delovnem mestu - biološki monitoring /(Chemical substances at workplace : Biologica monitoring) III. Sušnikovi dnevi, Radenci, 12. in 13. junij 2015 (MDF, AF)
- The expert meeting and roundtable on asbestos and the consequences for health and the environment and preventive measures, 30. 5. 2012 Ljubljana (MDF, AF)

Collaboration with associations, industry and local authorities

- Slovenian association of patients with asbestos related diseases, Deskle.
- Cancer Patients Association of Slovenia, Ljubljana
- Salonit Anhovo, d.d, Deskle, Slovenia
- National Institute of Public Health, Ljubljana
- Slovenian association of occupational, traffic and sports medicine, Slovenian Medical Association, Ljubljana
- Fundacija doc dr. J Cholewa, Ljubljana
- Municipality Kanal ob Soči

Planed activities

- The Pharmacogenetics Laboratory Open Day Event: 2015
- Congress of the Slovenian Biochemical Society with International Participation, September 2017, Bled, Slovenia
- 14th European ISSX Meeting, Cologne, Germany, June 26 - 29, 2017

Conclussions

The increasing incidence and poor prognosis of MM calls for new more effective detection methods, including the identification of novel biomarkers for early and reliable detection of MM, especially in high-risk populations with a known history of asbestos exposure. If people are more aware of the health risks associated with asbestos exposure and educated about the early signs and symptoms of asbestos related diseases, these diseases, especially malignant diseases could be recognized at earlier stages.

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