OBS PRO MESO PROJECT
Early diagnostics and prediction of treatment sensitivity in pleural mesothelioma.

Background

Malignant pleural mesothelioma is an aggressive asbestos-related malignancy with poor prognosis. The Danish guidelines require pleural biopsy to confirm the mesothelioma diagnosis. However, this procedure can be painful and challenging in fragile patients with comorbidity. As the majority of patients presents with pleural effusion at the time of referral, pleural drainage is commonly performed. However, the diagnostic accuracy of pleural effusion cytology needs to be improved. Furthermore, there are currently no validated predictive biomarkers for mesothelioma. Discovery of molecular signatures of mesothelioma chemo- and immunotherapy resistance may allow us to pinpoint single or combinations of biomarkers that can be identified in tumor and/or blood samples and can predict response to treatment.

The aim of the study

The main aim of the study is to discover diagnostic and predictive biomarkers in a prospectively collected biological material from patients with mesothelioma.

Study design

This is a multi-center, prospective study collecting and analyzing biological material and data of consecutive patients referred to cancer diagnostic procedures suspected for mesothelioma. Pleural effusion, blood-, tissue- and saliva samples will be collected from all patients under investigation for mesothelioma at the time of diagnosis, before systemic treatment. Blood samples will be collected from patients with confirmed mesothelioma at the point of first evaluation scan of tumor response after the first cycle of treatment. The biological material will be stored under the Danish Cancer Biobank. Patients not showing mesothelioma one year after the first biopsy will be used as a control group. The patient data will encompass various sources, including clinical data consisting of patient and disease characteristics and survival information, and an imaging dataset. The tissue samples and the pleural effusion cells will be analyzed for immunohistochemical biomarkers, such as BAP1, MTAP, CHK1, WT1, mesothelin. Blood samples will be analyzed for proteomics and circulating tumor DNA. The tumor DNA will be compared with germline DNA to avoid secondary findings.

Future perspectives

The study can potentially identify predictive and diagnostic biomarkers for mesothelioma. Diagnostic biomarkers will enable early diagnosis using minimal invasive techniques, saving patients from painful and time-consuming procedures. Predictive biomarkers will be used to identify patients who are not expected to benefit from treatment. They will avoid ineffective treatment with potentially harmful side effects and can be referred to experimental treatment protocols without time delay. In addition, this knowledge may facilitate the development of new, targeted treatments for mesothelioma.