

ABSTRACT

Charles University

Faculty of Pharmacy in Hradec Králové

Department of Biochemical Sciences

Candidate: Bc. Eliška Trejbalová

Supervisor: doc. PharmDr. Iva Boušová, Ph.D.

Consultant: Mgr. Monika Mašková

Title of diploma thesis: Incidence of malignant monoclonal gammopathies in patients
examined at the Regional Hospital Jičín a.s.

Monoclonal gammopathies include diseases affecting B-lineage blood cells of malignant and non-malignant origin, the common feature of which is the presence of M-protein in the patient's serum or urine. Malignant monoclonal gammopathies, like other malignant diseases, are on the rise in terms of case rates in the long term. Malignant monoclonal gammopathies include, among others, multiple myeloma, which is the second most common blood tumour, and less prevalent diseases (e.g. Waldenström's macroglobulinemia). Most malignant monoclonal gammopathies are preceded by a non-malignant type called monoclonal gammopathy of undetermined significance. Patients with this diagnosis are recommended to be monitored at specific intervals and in case of progressions to malignancy, to initiate treatment in time. The main goal of this thesis was to detect monoclonal gammopathy in patients examined at the Jičín Regional Hospital so that the analysis covers as many people as possible in the Jičín region. The selected region together with other (e.g. Trutnovsko, Královéhradecko) is the most affected by the frequency of monoclonal gammopathies. To achieve the goals, two basic methods were chosen to detect the occurrence, type, and concentration of M-protein – gel electrophoresis and immunofixation. Other parameters (e.g. creatinine, calcium, haemoglobin, free light chains, etc.) were examined in patients with detected M-protein. Thanks to these parameters, the patient can be categorized into a certain type of malignant or non-malignant monoclonal gammopathy, risk of transition to the malignant form, or stage of malignant disease. Of the 3805 electrophoretically analysed samples, M-protein was detected in 789. Immunofixation showed the presence of paraprotein in 292 patients, with 177 being newly identified. The malignant form of the disease was identified in the entire cohort in 14 patients.