

**1114 Effects of age and gender on peripheral lymphocyte micronucleus**

C. Ladeira<sup>1</sup>, S. Viegas<sup>2</sup>, J. Prista<sup>3</sup>, M.C. Gomes<sup>4</sup>, M. Brito<sup>5</sup>. <sup>1</sup>*Escola Superior de Tecnologia da Saúde de Lisboa, Anatomia Patológica, Lisboa, Portugal*, <sup>2</sup>*Escola Superior de Tecnologia da Saúde de Lisboa, Saúde Ambiental, Lisboa, Portugal*, <sup>3</sup>*Escola Nacional de Saúde Pública – Universidade Nova de Lisboa, Saúde Ambiental e Ocupacional, Lisboa, Portugal*, <sup>4</sup>*Faculdade de Ciências – Universidade de Lisboa, Biologia, Lisboa, Portugal*, <sup>5</sup>*Escola Superior de Tecnologia da Saúde de Lisboa, Biologia, Lisboa, Portugal*

Aging in humans appears to be associated with genetic instability. The cytokinesis-blocked micronucleus assay (CBMN) is a comprehensive method for measuring chromosome breakage, DNA misrepair, chromosome loss, non-disjunction, necrosis, apoptosis and cytostasis. Age and gender are the most important demographic variables affecting the micronucleus (MN) index and studies report frequencies in females being greater than those in males by a factor of 1.2 to 1.6 depending on the age group. It has been shown that a higher MN frequency directly corresponds to a decreased efficiency of DNA repair and increased genome instability.

The aim of this study is to investigate an association between age and gender and the synergistic effect of both upon MN in peripheral lymphocytes.

The study was carried out in Portugal in a sample of 85 subjects without any occupational exposition. The evaluation of genotoxic effects was conducted by applying CBMN in peripheral blood lymphocytes. Heparinized whole-blood samples were obtained, with informed consent, from unrelated individuals, men and women, stratified according to their age: 20–30, 31–40 and 41–55 years old. The correlation of MN frequency with age in men and women was further analyzed by linear regression.

This sample was constituted by 54 women and 31 men, with age mean of 32.42 years old. The mean of in women was 0.81 and in men 0.71. According to age, the MN mean were 0.47, 1.14 and 0.86 in 20–30 (n=36), 31–40 (n=35) and 41–55 (n=14) age categories, respectively. The correlation in both genders with age and MN frequency was not statistically significant.

The mean of MN was slightly higher in women than in men but not statistically significant. In general, and in conformation with other studies, women appear to reach a threshold of genome instability faster than men. Results about age showed that the age category that show highest mean of MN was 20–30 comparing with the category with the oldest subjects. That result can be explained by the size of last sample that is approximately half of the others.

**1115 Thyroid cancer and multiple primary tumours in the Belorussian cancer registry**

I. Veyal'kin<sup>1</sup>, Y. Averkin<sup>1</sup>. <sup>1</sup>*N.N. Alexandrov Research Institute of Oncology & Medical Radiology, Cancer Epidemiology, Minsk, Belarus*

**Background:** Thyroid cancer incidence rates have increased sharply in the Belarus since 1986 when Chernobyl disaster happened. Radiation exposure of <sup>131</sup>I at a young age is a strong risk factor, but otherwise the etiology is unclear. To explore etiologic clues, we studied the risk of thyroid cancer after an earlier primary cancer, as well as the risk of developing multiple primaries after an earlier thyroid cancer in Belorussian cancer patients from 1990 to 2007.

**Methods:** The retrospective cohort study used a study cohort consisting of 643 693 cancer cases diagnosed between 1990 and 2007. Cases were identified from records of the Belorussian National Cancer Registry and followed for thyroid cancer development through 2008. Proportion and Standardized Incidence Ratios (SIR) of synchronous (latency between diagnosis's less than a year) and metachronous primary multiple thyroid cancers (PMTC) were investigated. Only double combinations were considered (971 PMTC cases: 181 males and 790 females).

**Results:** More often synchronous thyroid cancer combines with tumours of lung, skin, pharynx and kidney (in males) and with breast, lung, skin and kidney (in females). Metachronous PMTC with first thyroid cancer was more frequently noted with tumours of lung, kidney and leucosis (in males) and with tumours of breast, skin, corpus uteri, kidney and leucosis (in females). Secondary metachronous PMTC were more often observed after tumours of kidney, larynx, skin and Hodgkin's lymphoma (in males) and breast, corpus uteri and skin (in females). In males highest risk of metachronous PMTC was established for combination with Hodgkin's lymphoma (SIR = 18.1; 95% CI 7.8–35.5 – when Hodgkin's lymphoma developed first and SIR = 8.6; 95% CI 2.3–22.0 – when Hodgkin's lymphoma developed secondary). Similar situation was observed for females (SIR = 5.5; 95% CI 2.7–9.8 – when Hodgkin's lymphoma developed first but no cases of PMTC when Hodgkin's lymphoma developed secondary). Apart Hodgkin's lymphoma significantly high risk of secondary cancer was noted for tumours of kidney, rectum and leucosis in males and of lung, kidney, breast, corpus uteri, colon, skin, melanoma and leucosis in females. Significantly high SIR were found for PMTC after tumours in kidney, larynx, pharynx, colon, after melanoma, leucosis in males and after neoplasms of kidney, pharynx, breast, lung, melanoma, bones and leucosis in females.

**Conclusions:** High association of thyroid cancer with Hodgkin's lymphoma, leucosis, kidney cancer and bones sarcomas could be an evidence of radiation impact (due to treatment or due to environment). High level of synchronous

diagnosis of tumours located near thyroid gland could be caused by more intensive medical attention to that area.

**1116 Analysis of surgical operations in tumour of proximal part of the femur and pelvis**

K.G. Abdikarimov<sup>1</sup>, M.A. Gafur-Ahunov<sup>1</sup>, K.Z. Iskandarov<sup>1</sup>. <sup>1</sup>*National Oncological Research Centre, General Oncology, Tashkent, Uzbekistan*

**Background:** Assessment of effectiveness of surgical treatment in locally-invasive tumours of proximal part of the femur and pelvis.

**Material and Methods:** Surgery performed on 50 patients with locally-invasive malignant tumours of skin, soft tissues and pelvis bones and femur upper third. Men – 39 (78%), women – 11 (22%). In 24 patients malignant tumour localized in proximal part of femur, in 20 – pelvis bones and soft tissues, in 2 – buttocks area and 4 – marked metastasis in ilioinguinal lymphnodes with infiltration to pelvis bones. Patients aged from 17 to 53 years, average – 35. Histologically, in 6 patients giant-cell malignant tumour, 9 – osteogenic sarcoma, 12 – chondrosarcoma, 5 – sarcoma Ewing's, 4 – rhabdomyosarcoma, 2 – polymorphocellular sarcoma, 1 – soft tissues angiosarcoma, 1 – leiomyosarcoma, 1 – synovial sarcoma, 4 – fibrosarcoma of soft tissues, 4 – metastatic affection of ilioinguinal lymphnodes and 1 – metastatic affection of pelvis bones.

Tumour size affection consisted of 13 to 45 cm. Total indications to perform inter-ilio-abdominal exarticulation was shown in malignant tumour of soft tissue and bones of upper third femur with transition to ilium area and pelvis minor, buttocks area tumours with affection of pelvis bones, pelvis bone tumours with spread to soft tissues and magistral vessels, and metastatic spread to ilioinguinal lymphnodes with involvement magistral vessels, nerves and infiltration of pelvis bones.

Patients were examined clinically, radiology and ultrasonic examinations, dopplerography, angiography, CT, MRT and morphological examination. Inter-ilio-inguinal exarticulation and pelvis minor tissue lymphdissection till aorta bifurcation were performed from front approach, processing vascular-nerve fascicle in retroperitoneal space. Off 50 patients in 7 was performed additionally sacral bones resection. In all patients conducted neoadjuvant and adjuvant polychemotherapy.

**Results:** In post operation period in 3 (6%) – cases observed pyoinflammatory complications, which were corrected after use of tranquilizers and analgetics within 1–2 months. All patients followed up to 1–12 years. In observation off 50 patients were revealed in 6 (12%) tumour recurrence, 14 (28%) – remote metastasis and 2 (4%) simultaneously revealed tumour recurrence and remote metastasis. Three and five years overall survival consisted of 44.5% and 35% accordingly.

**Conclusions:** Inter-ilio-abdominal exarticulation is selected method of treatment in local spread malignant tumours of proximal part of femur and pelvis. This method is improved overall survival and quality of patients' life. Before, those patients were considered symptomatic or palliative chemo-radiologic therapy.

**1117 Integrating molecular oncology into basic medical education in the age of individualized cancer therapy**

J. Hatina<sup>1</sup>, J. Finek<sup>2</sup>, W.A. Schulz<sup>3</sup>. <sup>1</sup>*Charles University Medical Faculty in Pilsen, Institut of Biology, Pilsen, Czech Republic*, <sup>2</sup>*University Hospital in Pilsen, Department of Oncology and Radiotherapy, Pilsen, Czech Republic*, <sup>3</sup>*Heinrich Heine University, Department of Urology, Duesseldorf, Germany*

Medical practice in oncology is becoming more interdisciplinary and treatment options are expanding, not least by the advent of molecularly targeted therapies. These new therapeutic modalities are often considerably more expensive and less universal than standard treatments, their effectiveness depending heavily on the particular genetic and epigenetic changes in each individual tumour. These new developments converge towards the concept of individualized cancer therapy according to which the therapy for each patient is chosen among multiple available options according to the status and wishes of the patient on the one hand and the histopathological parameters and molecular properties of the tumour on the other hand.

From a point of view of a practicing oncologist, entirely new kinds of skill and knowledge are required and these requirements have to be met by changes in medical education. For future generations of clinical oncologists, the ability of interdisciplinary communication in a case-oriented manner, an understanding of concepts and basic facts in molecular oncology, and the ability to acquire and pass on relevant information, are indispensable. Towards this goal, Charles University Medical Faculty in Pilsen and Heinrich Heine University Medical Faculty in Duesseldorf have started a new collaborative educational initiative in teaching molecular oncology to medical students. The teaching method combines classical lecturing with practical case oriented teaching, in which small groups of students discuss particular clinical cancer cases with both molecular biologists and clinical oncologists, acquiring and finally presenting relevant information. Our experiences from the first year of this programme will be presented.