Summary/Conclusions: In our experience, AML-MRC occurs mainly in elderly patients and is associated with a poor prognosis. The age at diagnosis (and therefore, the probability of receiving intensive chemotherapy) seems to be a strong determinant of prognosis; also, CD56-positive cases exhibited a lower mortality rate than those negative. Further studies are needed to confirm these findings and new therapeutic strategies should be investigated to improve outcome in this group of patients.

PB1672

THE ROLE OF DAILY ECG-MONITORING IN THE MYOCARDIAL INJURY DIAGNOSIS ON THE BACKGROUND OF ANTHRACYCLINE LOW CUMULATIVE DOSES IN PATIENTS WITH ACUTE LEUKEMIA IN COMBINATION WITH ISCHEMIC HEART DISEASE

T Lymanets*, I Skrypnyk, G Maslova
Chair of Internal Medicine #1, Ukrainian Medical Stomatological Academy, Poltava, Ukraine

Background: Anthracycline-induced cardiotoxicity is a complicated problem of treating patients with acute leukemia (AL), which can lead to the acute cardiac events development. Ischemic heart disease (IHD) is one of the cardiotoxicity risk factors, which requires monitoring of changes in myocardial bioelectric activity on the background of anthracycline low cumulative doses (CDs) in these patients.
Aims: To assess the nature of electrocardiogram (ECG) changes on the background of anthracycline low CDs in patients with AL taking into account concomitant ischemic heart disease.
Methods: The study involved 93 patients with newly diagnosed AL (acute lymphoblastic leukemia – 21 pts, acute myeloid leukemia – 72 pts), mean age 16-72 years, 48 (51.8%) men, 45 (48.2%) women, ECOG I-II. Their polychemotherapy (PCT) programs included anthracyclines. According to the presence of concomitant IHD patients were divided into two groups: I (n=57) – AL patients without concomitant IHD; II (n=36) – AL patients with concomitant IHD. The standard 12-lead ECG and daily ECG-monitoring were performed for patients of both groups in achieving the CD from 100 to 200 mg/m^2 for doxorubicin, which amounted 179.5±24.11 mg/m^2 and 172.1±23.15 mg/m^2 in patients of groups I and II respectively.
Results: The sinus tachycardia, repolarization processes violations and QRS complex voltage reduction were registered in 16 (28%) pts of group I according to the standard 12-lead ECG. In 29 (80.5%) pts of group II on the sinus tachycardia background the following changes were revealed: right bundle branch block – in 2 (5.6%) pts, left anterior fascicular block – in 2 (5.6%) pts, first-degree atrioventricular block – in 2 (5.6%) pts, supraventricular extrasystoles – in 4 (11.1%) pts, lower voltage and repolarization processes reduction – in 8 (22.2%) pts. The ST segment depression was registered in 13 (36.1%) pts, the Q-T interval prolongation – in 6 (16.6%) pts, T wave changes – in 6 (16.7%) pts of group II. According to the daily ECG-monitoring in 28 (49%) pts of group I with minimal physical activity on the tachycardia background the episodes of solitary supraventricular extrasystoles were detected. In all 36 (100%) patients of group II the periods of tachycardia were recorded, that were accompanied by the increasing number of single supraventricular extrasystoles, episodes of paired and group supraventricular extrasystoles – in 24 (66.6%) pts, single episodes of ventricular extrasystoles – in 19 (52%) pts and increased number of clinically significant ST segment depression periods – in 29 (80.5%) and Q-T prolongation – in 14 (38.8%) patients.
Summary/Conclusions: Low CDs up to 100-200 mg/m^2 for doxorubicin in AL patients without ischemic heart disease are accompanied by the cardiotoxic effects development in the form of arrhythmias: sinus tachycardia, supraventricular extrasystoles. In case of concomitant ischemic heart disease presence the complex of myocardial bioelectric activity disorders develops, such as arrhythmias, conduction abnormalities and silent myocardial ischemia. With the purpose of early anthracycline-induced cardiotoxicity diagnosis in patients with AL receiving PCT it is necessary to conduct daily ECG-monitoring, which has greater sensitivity compared with standard 12-lead ECG.

PB1673

MOLECULAR DIAGNOSTIC ON BONE MARROW BIOPSY SPECIMEN: AN INNOVATIVE CLINICAL TOOL WITH MAJOR IMPACT ON CLINICAL DECISIONS.

M Gavillet*, S Mathieu, O Spertini
Hematology, CHUV, Lausanne, Switzerland

Background: Genetics is currently central to diagnosis, prognosis and measure of response to therapy (minimal residual disease, MRD) for patients with acute leukemia, myeloid or lymphoid. These tests are usually conducted on bone marrow aspirate by various techniques (karyotype, fluorescence *in situ* hybridization, reverse transcription polymerase chain reaction, or DNA sequencing). In case of a dry tap these most valuable information are often lost.
Aims: Since January 2014, we implemented a method for DNA and RNA extraction from bone marrow biopsy specimen in case of a dry tap at diagnosis or during follow up. Here we present the method, results and relevance of the analysis conducted so far.
Methods: Bone marrow biopsy is immediately sunken in either RNAlater (QIAGEN, as for other products listed below) for transcript expression analysis such as acute myeloid leukemia (AML) recurrent genetic anomaly or MRD determination. In case DNA-based analysis is warranted, such as analysis of BCR rearrangements and NOTCH mutations, the biopsy specimen is put into phosphate buffer saline (PBS). Biopsy material is then manually crushed and solved in Qiazol for RNA and PBS for DNA. Manual extraction according to the phenol/chloroform is performed prior to RNA purification, quantification and reverse transcription according to manufacturer's instruction. DNA purification and quantification is performed similarly. Analyses are performed according to established standards for bone marrow aspirates.
Results: We retrospectively identified 32 analysis from 20 patients with either acute lymphoid leukemia (ALL, n=6), acute myeloid leukemia (AML, n=12) or high risk myelodysplastic syndromes (MDS, n=2). Dry tap occurred either at diagnosis (n=11) or during follow up (n=21), regardless of diagnosis (lymphoid or myeloid neoplasia), blast count (median 5%, range: 1-95%) or marrow fibrosis (median 2, range 0-4). In seven samples, this technique allowed to identify a mutation in NMP1, with impact on diagnosis and prognosis, which is not amendable to other techniques (karyotype or FISH). Seventeen more samples allowed to quantify minimal residual disease (levels of WT1 or BCR-ABL transcripts), which is either not possible or less refined by alternative cytogenetic methods. Seven patients had more than one sample, which allowed correlation with and refinement of response assessment by histology. On 11 occasions (37.5%) the result of molecular analysis had a major impact on therapy (mostly distinction of Philadelphia positive *vs* negative ALL n=5, targeted therapy for FLT3-ITD transcript n=1, identification of relapse/refractory disease n=2, decision between autologous *vs* allogeneic transplantation for consolidation n=2).
Summary/Conclusions: The method presented here is a readily accessible variant of the commonly used molecular diagnostic techniques. Its use can confirm, expand and usually refine the analysis available on the bone marrow biopsy specimen, and in one third of the cases, have a significant impact on therapy options.

PB1674

ACUTE MYELOID LEUKEMIA IN OLDER PATIENTS: COMPARISON OF THE EFFECTIVENESS OF THERAPY AND SURVIVAL ANALYSIS. A SINGLE CENTER EXPERIENCE

A Klak-Skubis[1], K Kapelko-Slowik[1,*], J Dybko[1], D Urbaniak-Kujda[1], M Biernat[2], S Stapor[1], K Kuliczkowski[1]
[1]Hematology, Blood Neoplasms and Bone Marrow Transplantation, [2]MIcrobiology, Wroclaw Medical University, Wroclaw, Poland

Background: Acute myeloid leukemia (AML) is disease of older adults with median age over 65 years. The effect of age and severe comorbidities are associated with high incidence of early death, low rate of complete remission (CR) and poor survival. Treatment options for elderly patients include: intensive chemotherapy, less-intensive regimens, best supportive care as well as enrollment in clinical trials. Therapeutic decisions in older AML patients are highly challenging and need to be individualized since the outcome in this group remains still unsatisfactory.
Aims: The aim of the study was to compare results of different treatment strategies in elderly patients with AML and to analyze overall survival in examined patients.
Methods: Patients. We describe a single center experience of 101 patients (41 females and 60 males) with diagnosis of AML, hospitalized in the Department and Clinic of Hematology, Blood Neoplasms, and Bone Marrow Transplantation, Wroclaw Medical University between 2007 and 2014. Median age was 70,6 years (range, 60-90 years). In 85 patients AML was diagnosed *de novo*, whereas 16 patients had secondary AML. Adverse, intermediate and favorable karyotype was found in 14, 82 and 5 patients, respectively. All patients were enrolled into therapeutic procedures according to the age, karyotype, performance status and comorbidity index. Fifty-five patients were treated with intensive chemotherapy regimen based on daunorubicin and cytarabine (DA, "3+5-7"), 22 patients obtained azacitidine (AZA), 14 patients were treated with low-dose cytarabine (LDAC), and only 10 patients received best supportive care (BSC). We estimated percent of CR, early mortality rate, leukemia free survival (LFS) and overall survival (OS).
Results: CR was achieved in 24 patients (44%) who received DA, and in 10 patients (28%) with less-intensive therapy. LFS was comparable in both these groups (5 *vs* 4 months), but superior in patients who received DA. Eight-week early mortality rate was up to 15% after intensive induction therapy and 10% after AZA and LDAC regimens. Nevertheless, median OS in patients treated with DA was marginally superior (5 month) than in patients who received low intensive treatment (4 month) and significantly longer than in patients with BSC (1 month).
Summary/Conclusions: The DA regimen remains still a best standard therapy in older AML patients with good performance status and low comorbidity index. Low-intensive treatment strategies (azacitidine, low-dose cytarabine) seem to be good therapeutic options for older patients with severe comorbidities.