patients had moderately severity and severity cases of type 2 diabetes. 20% out of 33% had moderately severity cases, they had a few chronic complications like hypertension and were treated with ACE inhibitor (Enalapril, Perindopril), a loop diuretic (Furosemide) and a biguanide (Metformin). The other 13% had severity cases and were treated with insulin, Metformin and one of the sulfonylurea derivatives (Glibenclamide, Gliclazide, and Glipizide). Metformin is the biguanide of choice. Metformin can use in all stages type 2 diabetes treatment in absent contraindications. Metformin is 1st line monotherapy for patients with compensated of type 2 diabetes taken in the morning (80%). The other 18% used insulin preparation called Actophene, 2% used the combination of insulin and Glibenclamide.

Conclusions. According to international recommendations, the first line initial therapy is Metformin, the second line is the combination of Metformin and Glibenclamide, the 3rd line is the combination of Insulin, Metformin and Glibenclamide. These drugs have proven to be very effective in treating and optimizing blood glucose level, that combined with a healthy diet and exercise, will surely improve and increase patients' compliance to therapy for long-term glycaemic control, reducing the risk of further acute and chronic complications that come with being diabetic like hypertension, kidney disease and others. A drug like Metformin are cost-effective and have a high level of availability. These factors make living with diabetes more manageable and achieve some level of normalcy.

THE IMPACT OF THE TEMPERATURE AND DURATION OF BLOOD SAMPLES STORAGE ON GENERAL BLOOD ANALYSIS PARAMETERS

Tumanovska A.V., Dmitrieva A.M.
Scientific supervisers: assoc. prof. Misiurova S.V., ass. prof. Svid N.O.
National University of Pharmacy, Kharkiv, Ukraine
mis.svetlana@i.ua

Introduction. Intra-laboratory quality control is an effective tool for influencing and evaluating the errors of laboratory research, through which the laboratory evaluates the reliability of the obtained result. It includes the following steps: preanalytical, analytical and postanalytical.

The preanalytical step begins with the delivery of the sample and application submission to the laboratory. The registrars check the compliance of the samples with the applications, the state of the samples, the time elapsed from their taking, mark the time of receipt of the sample by the laboratory. At this stage, the registration and identification of biomaterials are carried out, and samples are prepared for further analysis. The most common factors that may reduce the quality of research at the preanalytical stage are related to the collection procedure, compliance with storage conditions (temperature, duration, humidity) and transportation of biosamples, which leads to inconsistency of the results of the analysis.

The analytical step is the most difficult and time consuming: the storage and preparation for analysis, calibration of the analytical system, measurement of laboratory parameters in analytical series, both in patient samples and in control materials, as well as evaluation of acceptable results. The influence of numerous factors affecting different stages of sample processing can lead to erroneous results. Significant fluctuations in the room temperature where laboratory tests are carried out from the established criterion of 18-25°C are accompanied by discrepancy between the results of the analysis and the actual content of the analytes being tested, which leads to the false informing a doctor about the patient's condition. In particular, temperature control is required when performing techniques that require a long incubation of the reaction mixture "at room temperature".

The postanalytic step is a stage that can be divided into in-laboratory and non-laboratory parts. The main element of the intra-laboratory part of the postanalytic stage is the verification by a qualified laboratory technician of the analysis result for its analytical reliability, biological probability or plausibility, as well as comparison of each result with reference intervals. This part of the stage ends with

the signature of the report form, that is, the formation of the final product of the laboratory process and its transmission to the doctor. The non-laboratory part is the assessment by the physician of the clinical significance of the patient's health information obtained from a laboratory study.

The results of laboratory tests can be influenced by the following factors:

1. Factors due to inattention or incompetence of staff: error of biomaterial or patient identification; violation of the rules of taking the material, conditions of storage and transportation; improper preparation of the patient for the procedure of taking biomaterial; time of material collection; improper performance of medical manipulations in the collection of biomaterials, such as the duration of the plait on the shoulder when taken venous blood; violation of the primary treatment procedure (mixing, centrifugation, cooling, freezing).

2. Biological: gender; age; ethnicity; physiological state; the influence of environmental factors; eating and drinking; the presence of bad habits in the patient; physical activity; meal time.

3. Medical manipulations during which laboratory tests are carried out: diagnostic procedures (punctures, biopsies, functional tests, physical stress at loads; endoscopy; introduction of contrast media); surgery; various treatment procedures (infusions and transfusions; dialysis; the effects of ionizing radiation); taking medication.

Features of the research methodology: properties of the analyte (stability in biological material at different temperatures, biological half-life of the analyte, sensitivity to light); accuracy of adherence to sequence of separate analytical procedures, time of their duration and intervals between them, temperature regime and other conditions of analysis stipulated by the established research methodology; properties of consumables (preservatives and anticoagulants) used for taking the sample of biomaterial and its primary processing (mixing, centrifugation, cooling, freezing); metrological characteristics of measuring instruments.

The aim of the study. The study of the effect of temperature and duration of storage of blood samples in vacutainer on the parameters of general blood analysis.

Materials and methods. The study was conducted at the Clinical Diagnostics Laboratory of the Clinical and Diagnostics Center of NUPh. The subjects of the study were venous blood samples from BD Vacutainer® 4 ml (K_2EDTA) vacutainer taken from healthy volunteers, subject to blood sampling techniques. Before the measurement, blood vessels were thoroughly mixed according to the guidelines for preparing the blood sample for measurement: holding the vacutaner upright and rotating each vacutainer between the palms of the hands for 15-20 seconds. Continued mixing, holding the vial with the end of the thumb and forefinger, quickly flipped the vacutaner 20 times from top to bottom using very fast wrist swivels

The following blood counts were measured: leukocytes (WBC), erythrocytes (RBC), hemoglobin (HGB), hematocrit (HCT), platelets (PLT), lymphocytes (LYM, %), monocytes (MON, %) and granulocytes (GRA, %). Measurements of the total blood count were performed on an automatic hematological analyzer ADVIA 60CT by Bayer (Germany). The first measurement of the samples was carried out within one hour after material collection, the second measurement - after 24 hours under conditions of their storage at a temperature of 23-24°C.

The obtained results. The study showed that the majority of parameters of the total blood test (the number of red blood cells, leukocytes, platelets, hemoglobin and hematocrit) we’re not influenced by the temperature and storage of blood samples in vacutaner. Significant fluctuations were observed only in the leukocyte formula, namely: the number of monocytes on repeated measurement increased - from 2 to 3.5 times.

Conclusions. The results of our study confirm that strict adherence to all requirements of laboratory analysis stages, including compliance with the conditions of storage of blood samples in vacutaners (temperature, duration) significantly affects the quality of the final result.

The best way helping to resolve a complex set of problems that lead to an unsatisfactory quality of laboratory service is to implement quality management measures for clinical laboratory studies.