ABSTRACTS OF ORIGINAL STUDIES AND CASE REPORTS PRESENTED DURING POSTER SESSION OF THE 36th CONGRESS OF THE POLISH SOCIETY OF INTERNAL MEDICINE, APRIL 26, 2008

1 Are we and our children threatened by the negative effects of iodine shortage?

Dorota Szydlarska[1], Wiesław Grzesiuk[1], Małgorzata Trofimiuk[2], Michał Popow[1], Urszula Ambroziak[1], Piotr Miśkiewicz[1], Ewa Bar-Andziak[1]

1 Department of Internal Diseases and Endocrinology, Medical University of Warsaw, Warszawa, Poland
2 Department of Endocrinology, Jagiellonian University School of Medicine, Kraków, Poland

INTRODUCTION AND OBJECTIVES In Poland, iodine prophylaxis was started already in 1935 when table salt iodination was introduced for inhabitants of the Podkarpacie region. Obligatory iodination of salt for human consumption on the level of 30 mgKI/kg of salt was started in 1997. The aim of the present study was the assessment of iodine prophylaxis efficacy among adult inhabitants of the Mazowsze region.

METHODS The study included volunteers who reported to the Non Public Health Service Institution in Pułtusk, Maków Mazowiecki and Płoniawy. The total number of examined subjects was 541 (455 women and 86 men). Their average age was 49.1 ±12.1 years. Each participant filled the questionnaire concerning dietary habits and thyroidisms, was examined and had the ultrasonography of the thyroid gland. Every day the participants provided samples of morning-urine in which the level of iodine was measured.

RESULTS The urine iodine level for the examined population ranged from 5.54 µg/l to 405.03 µg/l, with the average 122 ±94 µg/l and the median 87.76 µg/l. The participants with ioduria level <50 µg/l made 21.62% of the studied group, and those with ioduria level >100 µg/l constituted 41.4% of it (FIGURE 1). The greatest percentage of the sufficient ioduria level (>100 µg/l) was among the inhabitants of Maków Mazowiecki (49.2%), the least (31.89%) among the inhabitants of the region of Płoniawa (FIGURE 2). Urine iodine levels differed depending on sex (the median for men was 98.99 µg/l, for women 86.58 µg/l) and age (up to the age of 35 the median ioduria was 90 µg/l and above 60 years it was 69.39 µg/l).

CONCLUSIONS According to the criteria of the International Council for the Control of Iodine Deficiency Disorders the supply of iodine in a given area is sufficient when the ioduria level >100 µg/l is presented by >50% inhabitants and the percentage of results <50 µg/l does not exceed 20%. The findings of the discussed study suggest a slight shortage of iodine in the Mazowsze region.

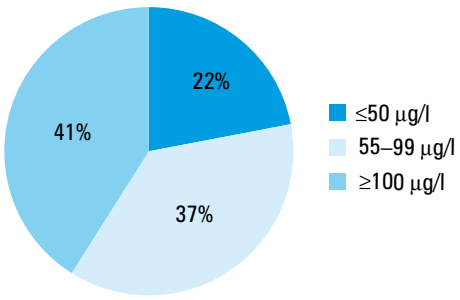


FIGURE 1 Total urine iodine level

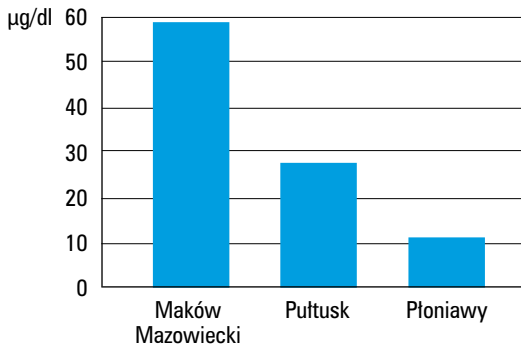


FIGURE 2 Median of the iodine level according to place of residence

2 Coeliac disease in systemic lupus erythematosus: a case report and review of literature

Antoni Hrycek[1], Urszula Siekiera[2]

1 Department of Internal, Autoimmune and Metabolic Diseases, Medical University of Silesia, Katowice, Poland
2 Tissue Typing Laboratory, Blood Bank, Katowice, Poland

INTRODUCTION AND OBJECTIVES Pathogenesis of both SLE and CD is still not fully understood. They are clinically heterogeneous, autoimmune diseases with etiology in which diverse genetic and environmental factors are implicated. Systemic lupus erythematosus involves the gastrointestinal tract, which is well documented, but the coexistence of SLE and CD is rare. However, there are some data indicating that patients with SLE develop CD and vice versa, and this highlights a possible association between the diseases. The aim of this description was the presentation of a patient who was earlier diagnosed and treated for SLE and thereafter developed additional symptoms of gastrointestinal involvement with the clinical, serological and histological presentation of CD.

METHODS The HLA typing was performed indicating that he was positive for HLA B8, DR3 and DQ2.

RESULTS When CD symptoms developed the diagnosis was corrected and additional treatment with a gluten-free diet was used with beneficial effects. The improvement concerning the weight and the levels of laboratory parameters was noted.

CONCLUSION Though these 2 diseases are rarely associated with each other the possibility that a patient may be afflicted with both diseases simultaneously does exist.

3 Changes in the upper part of the digestive system in patients with exacerbation of psoriasis

Andrzej Prystupa[1], Joanna Bartosińska[2], Małgorzata Dąbrowska-Członka[2], Grażyna Chodorowska[2], Jerzy Mosiewicz[1]

1 Chair and Department of Internal Medicine, Medical University, Lublin, Poland

2 Chair and Department of Dermatology, Venereology and Pediatric Dermatology, Medical University, Lublin, Poland

INTRODUCTION AND OBJECTIVES Psoriasis is a chronic disease of the skin and joints. Pathological changes in the upper part of the digestive system may develop in the course of psoriasis.

The aim of the study was to asses pathological changes in the upper part of the digestive system and the presence of the *Helicobacter pylori* infection found during the gastroscopy in patients with exacerbation of psoriasis.

METHODS The study included 42 patients hospitalized because of exacerbation of psoriasis. All patients underwent endoscopy examinations of the upper part of the digestive tract. Biopsy specimens were taken from macroscopical abnormalities of mucosa for histopathological examinations. The presence of *Helicobacter pylori* infection was assesed using the urease test.

RESULTS The duration of psoriasis ranged 4–41 years. The presence of *Helicobacter pylori* in the stomach mucosa was confirmed in 31 patients (73.81%). Gastroesophageal hernia in 32 patients (76.19%) and oesophageal reflux disease in 9 patients (21.43%) were revealed during the gastroscopy. Barrett's esophagus was diagnosed in 2 patients (4.76%) based on macroscopical and histopathological examinations. Chronic gastritis was the most common pathological change of the stomach mucosa. Peptic ulcers were diagnosed in 2 patients (9.52%). Intestinal metaplasia in the stomach mucosa was observed in 4 patients (9.52%). Duodenitis was present in 18 patients (42.86%) and duodenal ulcers were diagnosed in 4 patients (9.52%).

CONCLUSIONS Patients with psoriasis may manifest abnormalities of the upper part of the digestive system. Chronic gastritis and duodenitis are often observed in patients with psoriasis. The *Helicobacter pylori* infection is common in psoriatic patients.

4 The enzymatic activity of type 1 iodothyronine deiodinase in rare liver tumors – a preliminary study

Marcin Dębski[1], Oskar Kornasiewicz[2], Marta Stepnowska[1], Anna Szałas[1], Marek Krawczyk[2], Ewa Bar-Andziak[1]

1 Chair and Department of Internal Medicine and Endocrinology, Medical University of Warsaw, Warszawa, Poland

2 Department of General, Transplant and Liver Surgery, Medical University of Warsaw, Warszawa, Poland

INTRODUCTION AND OBJECTIVES D1 is responsible for the conversion of T_4 into T_3. The enzyme is mainly present in the thyroid, the liver and kidneys. Thyroid hormones regulate genes transcription, mRNA and protein synthesis.

There is strong evidence that the metabolism of thyroid hormones is disturbed in some neoplasmatic tissues. However there are only few available data about D1 enzymatic activity in liver tumors.

The aim of this study was to estimate the enzymatic activity of D1 in rare liver tumors, lymphoma and cholangiocarcinoma, in comparison with normal liver tissue. The activity was assessed by measurement of radioactive iodine released in the reaction of deiodination catalyzed by D1.

METHODS 2 samples of lymphoma, 1 sample of cholangiocarcinoma and the corresponding number of control normal tissues were collected from the patients, who were operated because of that disease.

RESULTS It was found that D1 activity was significantly lower in these tumors in comparison with healthy counterparts.

Decreased enzymatic activity of D1 was found in large bowel cancer hepatic metastases but not in FNH (unpublished own data).

CONCLUSIONS The current study reports low D1 in rare proliferative liver lesions, lymphoma and cholangiocarcinoma. This finding suggests the so far unknown role of thyroid hormones in rare liver tumors, therefore further investigations seem to be justified.

III AWARD

5 Is asymmetric dimethyloarginine associated with endothelial dysfunction in active rheumatoid arthritis?

Beata Kwaśny-Krochin[1], Ewa Stępień[2], Piotr Głuszko[1]

1 Departament of Rheumatology and Balneology, Jagiellonian University School of Medicine, Kraków, Poland

2 Institute of Cardiology, Jagiellonian University School of Medicine, Kraków, Poland

INTRODUCTIONS AND OBJECTIVES Persistent endothelial cell activation and dysfunction have been hypothesized to link the chronic, inflammatory process in RA. To investigate a relationship between the disease activity and endothelial dysfunction the study including 46 patients with RA and 50 healthy controls was performed.

METHODS RA patients underwent clinical evaluation (DAS28, HAQ). In both groups measurements were

TABLE for 5 Clinical and laboratory results in RA patients and healthy controls

	RA (n = 46)	Controls (n = 50)
DAS 28	5.2 ±1.1	–
HAQ	1.3 ±0.7	–
ESR (mm/h)	28.1 ±20	–
CRP (mg/l)	14 ±18.2*	1.86 ±1
ADMA (μmol/l)	0.6 ±0.1*	0.455
SDMA (μmol/l)	0.5 ±0.1*	0.359
arginine (μmol/l)	69.8 ±9.3	63.9 ±1.4
8-iso-PGF2a (pg/ml)	249.5 ±51*	100 ±25.4

*p <0.0001

Data are shown as median ±SD.

performed to determine CRP, fibrinogen, plasma levels of ADMA, SDMA, arginine and serum levels of 8-iso-PGF2a, a marker of oxidative stress.

RESULTS Results are presented in the TABLE. Plasma levels of ADMA and SDMA, and 8-iso-PGF2a levels were significantly higher in the RA group. Levels of ADMA in RA correlated (p <0.01) with DAS28 (r = 0.47), HAQ (r = 0.41), fibrinogen (r = 0.72) and CRP (r = 0.89). Plasma levels of SDMA positively correlated (p <0.01) with DAS28 (r = 0.43), HAQ (r = 0.39), CRP (r = 0.83) and fibrinogen (r = 0.65). The level of 8-iso-PGF2a positively correlated (p <0.01) with DAS28 (r = 0.48), HAQ (r = 0.41), CRP (r = 0.89), ADMA (r = 0.73), SDMA (r = 0.64) and fibrinogen (r = 0.72).

CONCLUSIONS The obtained data indicate that elevated plasma levels of ADMA and SDMA detected in active RA are associated with the disease activity and correlate with the inhibition of NO synthase in endothelial cells leading to vascular dysfunction. Increased levels of serum 8-iso-PGF2a in active RA may suggest a role of oxidative stress in the pathogenesis of vascular wall injury.

TABLE for 6 Laboratory results in healthy controls and RA patients

	Controls (n = 50)	RA (n = 46)
Fibrinogen (g/l)	2.66 ±0.6	4.41 ±1.4*
Ks (10–9 cm²)	8.77 ±1.1	6.5 ±1.2*
t½ (min)	8.32 ±0.2	9.9 ±1*
D-D max (mg/l)	3.48 ±0.1	4.23 ±0.5*
D-D rate (mg/l/s)	0.085 ±0.0	0.08 ±0.0*
tPA (ng/ml)	6.76 ±0.82	10.97 ±3.0*
PAI-1 (ng/ml)	10.47 ±1.2	16.83 ±7.4
lag-phase (s)	41.7 ±0.7	37.56 ±3.5*

*p <0.05

Data are shown as mean ±SD.

6 Reduced clot permeability and impaired fibrinolysis in patients with active rheumatoid arthritis

Beata Kwaśny-Krochin[1], Ewa Stępień[2], Piotr Głuszko[1]

1 Department of Rheumatology and Balneology, Jagiellonian University School of Medicine, Kraków, Poland
2 Institute of Cardiology, Jagiellonian University School of Medicine, Kraków, Poland

INTRODUCTIONS AND OBJECTIVES Patients with RA are at higher risk of cardiovascular disorders. 46 RA patients were studied to determine plasma fibrin clot characteristics.

METHODS 50 sex and age-matched healthy volunteers served as controls. Blood samples were collected from all subjects to determine CRP, fibrinogen, tPA, and PAI-1 levels. Fibrin clot permeability (Ks), turbidity measurements (lag phase and Ab_{max}), t½, D-D rate and D-D max were measured.

RESULTS Mean values of Ks were by 25% lower in the RA group comparing to the controls. t½ was by 16% longer in RA patients than in the controls (TABLE). Significant (p <0.01) inverse correlations between CRP (r = 0.55) and Ks, fibrinogen (r = 0.68) and Ks, DAS28 (r = 0.45) and Ks were found. The lag phase correlated inversely with fibrinogen (r = 0.41, p <0.01). Positive correlations (p <0.01) were found with t½, CRP (r = 0.57), fibrinogen (r = 0.7), and DAS28 (r = 0. 48).

CONCLUSIONS This is the first fibrin clot structure study in RA. Its result suggest that less porous clots with decreased permeability and slower clot lysis occur in RA and are associated with the increased activity of the disease.

7 Postprandial duplex-Doppler examination of the liver and bile ducts in patients with metabolic syndrome

Grzegorz Zabielski, Agnieszka Bała, Iwona Marczyk, Justyna Zabielska

Department of Internal Diseases with Clinical Pharmacology and Drug Monitoring Unit, University of Medicine, Łódź, Poland

INTRODUCTION AND OBJECTIVES The dysfunction of the liver and bile ducts is often observed in the group of patients suffering from metabolic syndrome. Both physical examination and results of the laboratory tests not always give the clear image of the disorders which may occur in these organs. The postrprandial duplex-Doppler examination of the liver and bile ducts may complete the clinical diagnosis. The aim of the study was to compare postprandial reactions of the gall bladder and the portal vein confluens in the group of patients with metabolic syndrome.

METHODS 40 patients suffering from metabolic syndrome and forty healthy volunteers were examined. The size and morphology of the gall bladder, the diameter of the portal vein trunk and mesenteric superior vein were estimated in the 2D presentation. The maximal velocity of the blood flow and the shape of the flow in these vessels were estimated by the Doppler presentation. The sonographic examination was performed before and

after the standard meal (600 kcal). During the clinical observation all diseases which could affect the reaction of the gall bladder or change the portal vein flow were excluded. Patients did not receive medications before the examination.

RESULTS Pathological postprandial gall bladder reactions (atonic, hipotonic) were observed in 24 patients (60%) suffering from metabolic syndrome. Postprandial changes in abdominal veins occurred equally often in the group of metabolic patients and in the control group.

CONCLUSIONS The duplex-Doppler examination is a useful method for estimating postprandial reactions of the gall bladder in the group of patients with metabolic syndrome. Enlargement of the gall bladder and impairment of its contraction in the group of patients with metabolic syndrome may be one of the sonographic symptoms of the progression of the disease.

8 Chosen parameters of oxidative--antioxidative balance in patients with heart failure treated with cardiac resynchronization therapy

Małgorzata Rozwodowska[2], Alina Woźniak[2], Jacek Kubica[1], Gerard Drewa[2], Wojciech Krupa[1], Tomasz Fabiszak[1], Sławomir Sielski[1]

1 Department of Cardiology and Internal Diseases, Collegium Medicum of Nicolaus Copernicus University, Bydgoszcz, Poland
2 Department of Medical Biology, Collegium Medicum of Nicolaus Copernicus University, Bydgoszcz, Poland

INTRODUCTION AND OBJECTIVES Changes in oxidative-antioxidative balance play a role in the pathogenesis of some diseases, especially cardiovascular, and the restoration of oxidative-antioxidative balance is often connected with therapy efficiency. CRT is a method of treatment in patients with heart failure. The aim of the study was an assessment of oxidative-antioxidative balance in patients with heart failure. Oxidative stress was measured by the determination of levels of TBARS in plasma, and the antioxidant level was essayed by CAT, SOD and GPx activity in erythrocytes.

Pharmacological treatment before CRT: all patients took β-blokers and diuretics, 15 patients were given ACEI, 13 patients – spironalactone, 13 – statins, 12 – aspirin, 4 – nitrates, 4 – digoxin, 3 – ARB and 3 – amiodarone. In the period of 2–5 days after CRT the number of patients who took β-blokers, diuretics, ACEI, ARB, spironalactone, digoxin and nitrates was unchanged. 3 patients more than before took aspirin and 1 more statin. 6 months after CRT the number of patients who took β-blokers, spironalactone, digoxin and nitrates was unchanged. 3 patients stopped taking ACEI and in 2 of them ACEI were replaced by ARB. Diuretics were withdrawn in 2 patients. 14 patients took statins and 15 aspirin.

METHODS The patients examination was performed before CRT, 2–5 days and 6 months after the implantation of CRT device. The plasma TBARS level was essayed by the Buege and Aust method, CAT activity was measured by the Beers and Sizer method, SOD activity by the Misra and Fridovich method and GPx was evalutated by the Paglia and Valentine method. All enzymes activity was essayed in erythrocytes. The results were analyzed by comparing the difference significance using the Student t-test.

Before CRT the patients were optimal pharmacologically treated. In 12 patients the CRT pacemaker was used, 5 patients received CRT and the cardioverter-defibrillator device. Pharmacological treatment was continued.

RESULTS The level of TBARS (nmolMDA/ml) in plasma before CRT was 0.53 ±0.16, 2–5 days after CRT was 0.58 ±0.14 and 6 months after CRT was 0.41 ±0.1. The differences were statistically significant before CRT and 6 months after CRT and also 2–5 days and 6 months after CRT ($p < 0.05$). Antioxidant enzymes activity in erythrocytes: CAT (IU/gHb) was 69.86 ±12.32 before CRT, 69.92 ±19.15 during 2–5 days after CRT and 50.78 ±16.01 6 months after CRT, SOD (U/gHb) was adequately 1118.07 ±161.5, 1093.97 ±243.17 and 1001.96 ±170.58, for GPx (U/gHb) values were 10.92 ±8.06, 8.25 ±7.6 and 8.72 ±8.26. The differences were statistically significant before CRT and 6 months after CRT for CAT and SOD and also 2–5 days and 6 months after CRT only for CAT ($p < 0.05$).

Percentage of biventricular pacing from 6 months was 99.29% (99.15–100%).

The improvement in heart failure in 16 patients and the deterioration in 1 patient were observed. The improvement in heart failure was expressed by the NYHA class change and was statistically significant. The LVEF increased from 22 ±5% to 33 ±7% and this difference was statistically significant ($p < 0.05$).

The decreased level of TBARS as an oxidative stress index and the decreased antioxidant enzymes activity (CAT, SOD, GPx) were observed after 6 months of CRT. The differences were statistically significant ($p < 0.05$) for TBARS, CAT and SOD.

CONCLUSIONS Cardiac resynchronization therapy in patients with heart failure was connected with the oxidative stress decrease and the antioxidant enzymes activity decrease in response to oxidative stress.

TABLE for 8 Characteristics of patients with heart failure before CRT

Patients number	17
Age (years)	62.9 ±9,5 (42–80)
Gender M/F	12/5
Heart failure etiology	
Idiopathic dilated cardiomyopathy	10
Ischemic cardiomyopathy	7
NYHA class	
III	16
IV	1
LVEF (%)	22 ±5 (17–30)
LVEDD (mm)	72 ±9 (54–90)
Sinus rhythm	15
DDD pacemaker rhythm	2
QRS time duration (ms)	177 ±16 (160–200)
Left bundle branch block	14
Right bundle branch block	1
Atrioventricular block 1st degree	3
Concomittant diseases	
diabetes mellitus type 2	6
hypertension history	7

9 Diagnostic difficulties in an adult patient with non-Hodgkin lymphoma: a case report

Zbigniew Heleniak[1], Maja Sławińska-Morawska[1], Zbigniew Zdrojewski[1], Bolesław Rutkowski[1], Antoni Żawrocki[2], Wojciech Biernat[2], Robert Rzepko[3], Kazimierz Jaśkiewicz[3]

1 Department of Nephrology, Transplantology and Internal Disease, Medical University, Gdańsk, Poland
2 Department of Neuropathology and Molecular Pathology, Medical University, Gdańsk, Poland
3 Department of Pathomorphology, Medical University, Gdańsk, Poland

INDRODUCTION AND OBJECTIVES The group of non-Hodgin lymphoma is characterized by proliferation of lymphocyte B, T or NK. The clinical symptoms of this disease are various.
The presentation of a case report with diagnostic difficulties concerning disseminated non-Hodgkin lymphoma.
METHODS The authors present the case study of a 71-year-old man admitted to the hospital with a 2-month history of fever, weakness and weight loss.
RESULTS The physical examination showed only hepatosplenomegaly. Laboratory tests revealed: pancytopenia, hypercalcemia, hypoalbuminemia, longer time of coagulation, elevated D-dimer, alkaline phosphatase, light chain and β_2-microglobulin levels. The CT scans of abdominal cavity showed: hepatosplenomegaly without any focal tumors and without lymphnodular. The radiograph of the cranium showed 2 osteolytic metastases, the immunophenotypization of peripheral blood revealed young, giant and atypic cells, and in the bone marrow sample 15% of plasmocytes were found. The endoscopic examination of the digestive system did not provide any pathological features. The liver biopsy was not obtained because of thrombocytopenia and longer coagulation time. On the 5th day of hospitalization jaundice was observed in the patient. Steroids, antibiotics and urodeoxycholic acid were administered. Despite this treatment the patient's state deteriorated. On the 43rd day of hospitalization the patient died because of neurotoxicity of bilirubin. The autopsy and histopatalogical and immunohisochemical examinations of tissue showed that the cause of death was disseminated large cell lymphoma with the origin place at the stomach.
CONCLUSIONS Diagnostic difficulties in this study were connected with the variety of clinical symptoms and untypical results of additional tests.
This case report suggests the necessity of performing the tissue biopsy in patients with non lymph nodular localization of lymphoma.

10 The register of patients with primary systemic vasculitis – experience of a single referral center in southern Poland

Jan Sznajd[1], Marek Żółciński[1], Joanna Kuschill-Dziurda[2], Marcin Kaczor[1], Marek Sanak[1], Andrzej Szczeklik[1], Jacek Musiał[1]

1 II Department of Internal Medicine, Jagiellonian University School of Medicine, Kraków, Poland
2 Department of Pulmonology, University Hospital, Kraków, Poland

INTRODUCTION AND OBJECTIVES PSV are a group of uncommon and heterogenous diseases with variable prevalence. The region's clinic for autoimmune diseases is a referral center for Małopolska province in southern Poland (approx. 3,300,000 inhabitants). The prevalence and clinical presentation of PSV in this region is unknown.
The center focuses on developing a register of patients with PSV that could allow the collection of retrospective and prospective data and the determination of prevalence, clinical presentation and laboratory abnormalities in patients with PSV in southern Poland.
METHODS Patients who fulfilled the American College of Rheumatology criteria of PSV were referred to the center by a broad range of medical specialty departments from southern Poland. The electronic questionnaire has been developed to collect data on patients' demographics, clinical manifestations, laboratory findings and the course of the disease. Blood samples for basic and immunological tests were taken (i.e. ANCA, ANA, anti-PR3, anti-MPO). Genotyping and AAT serum level measurements for a possible AAT deficiency were also performed.
RESULTS The total number of enrolled PSV patients till January 2008 was 56. 39 ANCA-positive patients (76%) were identified by indirect immunofluorescence. Anti-PR3 and anti-MPO specific antibodies were present in 53.8% and 10.2% of patients, respectively. WG was diagnosed in 70.6%, Churg-Strauss syndrome in 13.7%, microscopic polyangitis in 3.9%, Henoch-Schonlein purpura in 3.9%, Takayasu disease in 7.8% of cases. The involvement of the upper respiratory tract was present in 66.7%, lower respiratory tract in 62.7%, renal in 54.9%, articular in 54.9%, skin in 43.1%, ocular in 25.5%, nervous system in 25.5%, cardiovascular in 23.5% and gastrointestinal in 15.7% of patients. Estimated prevalence of PSV in the discussed region was 15.4/million. Mean age at the time of diagnosis was 49 $\pm$13 years. Genotyping for AAT deficiency alleles revealed 4 cases of MZ heterozygosity, exclusively in patients with WG. The frequency of MZ heterozygotes was 5.3-fold higher in WG compared to a general population (exact Fisher test: $p = 0.0096$, odds ratio 5.8, 95% CI 1.3–19.1). Measurements of AAT serum level showed borderlines or normal values.
CONCLUSIONS The estimated prevalence of PSV in the described region is lower than in other European countries. We should make every effort to better identify PSV patients in this area. As concerns the clinical manifestation of PSV the Polish population does not significantly differ from other populations. The current study confirms a higher frequency of MZ heterozygotes in WG compared to a general population.

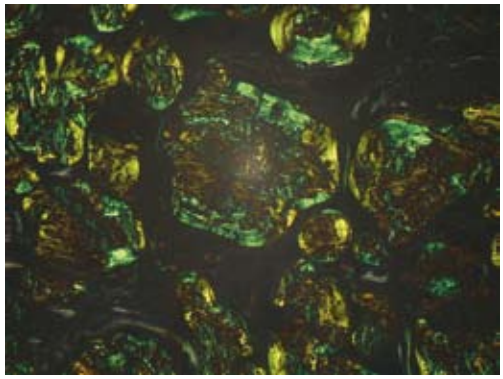


FIGURE 1 Deposits of amyloid showing a typical green birefringence under polarized light.

11 Recurrent hemolytic anemia due to amyloidosis

Lidia Usnarska-Zubkiewicz[1], Jadwiga Hołojda[2], Kazimierz Kuliczkowski[1]

1 Department of Hematology, Blood Neoplasms and Bone Marrow Transplantation, Medical University, Wroclaw
2 Department of Hematology, Provincial Specialist Hospital, Legnica, Poland

INTRODUCTION Amyloidosis is a rare systemic disorder characterized by tissue deposition of an amorphous substance resistant to proteolysis. Diagnosis is based on establishing the deposits showing a typical green birefringence under polarized light (**FIGURE 1**).

To date, 26 different amyloid precursors have been identified. The most common are AL amyloidosis (immunoglobulin light chains are amyloid's precursor molecules) and AA amyloidosis – the deposition of AA fibrils which circulates in a complex with lipoproteins (they are a cleavage product of serum protein SAA, which is elevated in the course of the inflammation).

There are four basic mechanisms of amyloidogenesis:

1 Overproduction or failure to excrete an intact molecule that has a level dependent tendency to misfold, e.g. β_2-microglobulin.

2 The precursor molecule is not amyloidogenic, but abnormal proteolysis generates an amyloidogenic fragment, like, for example, in Alzheimer's disease.

3 Insufficient proteolysis leads to amyloidogenic fragments yielding in the case of overproduction and undergeneration of proteins. This may be the pathway of AA and is associated with AL amyloidogenesis.

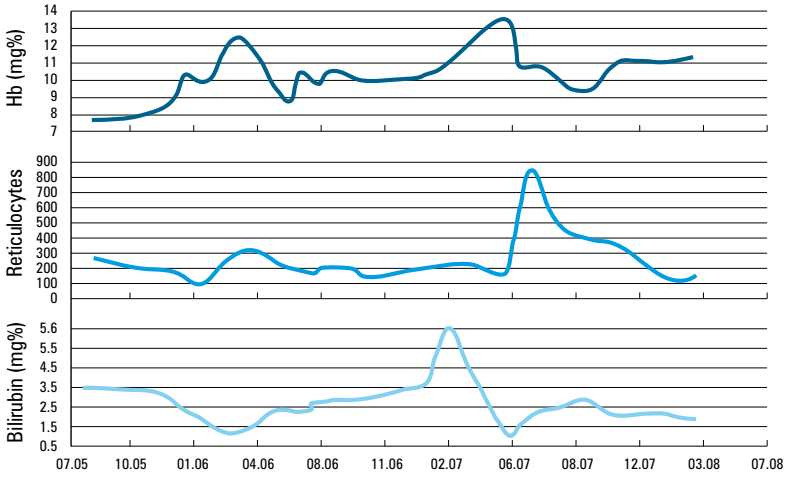
4 In the prion diseases, as a misfolded template.

CASE REPORT A 73-year old woman was first admitted to the Hematology Department of Provincial Specialist Hospital in Legnica in August 2005, and she presented with hemolytic anemia. Her medical history consisted of coronary artery disease with acute myocardial infarction (1990) and coronary angioplasty (2005), hypertension according to JNC 7, hypertrophic cardiomyopathy, hypothyroidism and insulindependent diabetes mellitus.

Clinical examination revealed jaundice, splenomegaly, anemia (hemoglobin 8.0 g/dl), reticulocytosis 324‰, the indirect bilirubin level was 3.43 mg/dl, lactate dehydrogenase 1736 IU/ml. The antibodies against red cells IgG and IgA were in low ratio. No monoclonal immunoglobulin nor serum free light chains were present. In myelogram, erythroblasts count was 63%, no signs of lymphoproliferation were found. Corticosteroids, cyclophophamide and packed red cell transfusion were administrated and hemolysis stopped. The recurrences of the disease were observed in June 2006, April 2007 and September 2007, despite the splenectomy in April 2007 – **FIGURE 2** (pathology: without lymphoproliferation). In the biopsy of adipose tissue (September 2007), amyloid deposits were shown. Administration of Vinca alcaloid resulted in achieving independence from red cell transfusions (hemoglobin 11 g/dl).

SUMMARY In the course of chronic infectious and non-infectious inflammation generalized B-cell activation is observed along with high levels of polyclonal immunoglobulines and high polyclonal sFLCs. Moreover, the serum protein SAA level is elevated. Elevation of sFLCs and SAA levels was detected in RA and SLE, whereas sFLCs were found in idiopathic hypothyroidism and diabetes mellitus. Diabetic retinopathy and nephropathy was confirmed to be the cause of chronic inflammation and high sFLCs production. The deposits of AA fibrils are a cleavage product of SAA protein and a reason for amyloidosis A development. There are three isoforms of SAA protein (SAA1, 2 and 4), encoded by three homologous genes located on the chromosome 11. The proteins SAA1 and SAA2 were identified as amyloid components. In the discussed patient with a long history of hypothyroidism and insulin-dependent diabetes mellitus, polyclonal hypergammaglobulinemia was detected, whereas the SAA protein level was within a normal range. Amyloidosis might be the result of inadequate proteolysis and yielding amyloidogenc fragments due to overproduction exceeding the capacity of degenerative mechanisms for polyclonal sFCLs and SAA (3rd mechanism of amyloidogenesis). Hemmer et al. presented a case of amyloidosis L of duodenum and jejunum in the course of polyclonal hypergammaglobulinemia. On the other hand, in patients with RA amyloidosis developed despite low levels of SAA. Amyloid deposits in tissues of the presented patient were presumably a cause of the development of antibodies responsible for recurrent hemolytic anemia. It was confirmed that sFLCs and amyloid A fibrils were involved in lymphocytes B activation. In the discussed case, no other cause of antibodies induction was revealed, moreover their low level indicates to their self-existent origin. The cases of amyloidosis with iron-deficiency anemia, erytropoietin-resistant anemia and anemia of chronic diseases were presented in available data. However, the authors did not find any cases of recurrent hemolytic anemia due to amyloidosis.

FIGURE 2 Recurrent hemolytic anemia due to amyloidosis according to the hemoglobin level, the serum bilirubin level and reticulocytosis



I AWARD

12 Antibodies to Nε-homocysteinylated-proteins in patients with antiphospholipid syndrome

Agnieszka Padjas

Department of Medicine, Jagiellonian University School of Medicine, Kraków, Poland

INTRODUCTION AND OBJECTIVES The role of the elevated Hcy level in APS remains unknown. One of the potential mechanisms underlying harmful effects of Hcy is protein Nε-homocysteinylation and production of specific autoantibodies against Nε-hcy proteins.
The aim of the study was to investigate whether anti-Nε-Hcy-albumin and anti-Nε-Hcy-hemoglobin antibodies occur in patients with APS and identify factors that determine these antibodies in such population.
METHODS In 56 subjects with APS (mean age 40.5 ±10.8 year) and in 66 age-and sex-matched healthy controls, serum IgG antibodies to Nε-Hcy-albumin and anti-Nε-Hcy-hemoglobin were determined using the in-house enzyme linked immunosorbent assay. tHcy, folate and vitamin B_{12} levels were also determined.
RESULTS Subjects with APS had higher plasma tHcy and CRP levels and lower folate levels than controls. Levels of anti-Nε-Hcy-albumin (medians [IQR] 0.453 [0.311–0.658] vs. 0.199 [0.167–0.254], $p < 0.0001$) and anti-Nε-Hcy-hemoglobin (0.569 [0.43–0.779] vs. 0.291 [0.24–0.362], $p < 0.0001$) were higher in patients with APS than in controls. In APS patients, the levels of anti-Nε-Hcy-albumin and-hemoglobin antibodies correlated with tHcy ($r = 0.56$, $p < 0.0001$ and $r = 0.53$, $p < 0.0001$), CRP ($r = 0.85$, $p < 0.0001$ and $r = 0.84$, $p < 0.0001$), ACL IgG level ($r = 0.75$, $p < 0.0001$ and $r = 0.73$, $p < 0.0001$) and the level of anti-β_2-glicoprotein I IgG antibodies ($r = 0.46$, $p < 0.0001$ and $r = 0.47$, $p < 0.0001$). There were no associations between the age, folate and the vitamin B_{12} level and the anti-Nε-Hcy-protein antibodies level. The multivariate regression analysis showed that tHcy, CRP and ACL IgG levels were independent predictors of the anti-Nε-Hcy-protein antibodies level in patients.
CONCLUSIONS In APS patients hyperhomocysteinemia is connected with the increased, compared with healthy controls, levels of anti-Nε-Hcy-albumin and-hemoglobin antibodies. The levels of tHcy, CRP and ACL IgG were independent predictors of the anti-Nε-Hcy-protein level in these patients.

13 Congenital absence of inferior vena cava in a patient with deep venous thrombosis

Michał S. Szyguła[1,2], David J.P. Williams[1,2], Linda McLoughlin[1], Stewart McAuluy[1]

1 NHS Grampian, Aberdeen Royal Infirmary, Aberdeen, United Kingdom
2 University of Aberdeen, Aberdeen, United Kingdom

INTRODUCTION Congenital absence of IVC is a rare abnormality of the cardiovascular system being found in aproximately 0.3% of the population. DVT is a common disease usually of the lower limb. There are several risk factors for DVT including malignancy, immobilization, coagulopathies etc. Among the young population DVT is usually secondary to the intravenous drug usage or malignancy.
CASE REPORT The current paper presents a case of a 38-year-old male with no previous medical history. His main complaint on admission was of the swollen right leg for 2 days. He had no known risk factors for DVT. On examination there was a clinical suspicion of DVT, which was confirmed on the Doppler ultrasound scan. Because of his age the abdominal ultrasound was performed which was reported initially as showing "at the level of the aortic bifurcation, and closely related to the vessels a rounded mass lesion measuring just over 4 cm in diameter. It had a mainly cystic appearance, but with a layered effect on one wall. No flow was seen within it on the Doppler". Computed tomography was performed following this and the congenital absence of IVC with a collateral circulation via retroperitoneum to the azygos and hemiazygos system were diagnosed. The echocardiogram showed no abnormalities. This patient was also diagnosed as a carrier for Leiden mutation. The patient was anticoagulated with the recommendation that anticoagulation should continue for life.
SUMMARY Congenital absence of IVC can be a reason for DVT in young individuals.

14 Heart rate variability and cardiac arrhythmias in patients with systemic sclerosis

Andrzej Prystupa[1], Dorota Czelej[2], Jerzy Mosiewicz[1], Dorota Krasowska[2]

1 Chair and Department of Internal Medicine, Medical University, Lublin, Poland
2 Chair and Department of Dermatology, Venereology and Pediatric Dermatology, Medical University, Lublin, Poland

INTRODUCTION AND OBJECTIVES SSc is a connective tissue disease characterized by progressive fibrosis of the skin and visceral organs in which the heart is frequently and severely involved. The common symptoms of heart damage in the course of SSc are cardiac arrhythmias.
The aim of the study was to analyze the number and kind of cardiac arrhythmias and HRV in patients with SSc and a control group.
METHODS The study group consisted of 14 persons at the mean age of 55 years with SSc and the control group including 13 persons. The 24-hour Holter monitoring examination was performed in all subjects. Cardiac arrhythmias and the following parameters of HRV in time domain were analyzed: SDNN, SDANN, rMSSD, pNN50.
RESULTS Supraventricular and ventricular premature beats statistically more often occurred in the group with SSc than in the control group. In SSc patients, HRV analysis showed significantly lower values of SDANN (125 ±37), rMSSD (22.43 ±9.41), and pNN50 (4 ±5.55) in comparison with the control group: SDANN (130 ±27), rMSSD (31.23 ±11.40), pNN50 (10.23 ±9.64).
CONCLUSIONS Supraventricular and ventricular premature beats more often occurred in the group with

systemic sclerosis than in the control group. Parameters of heart rate variability in time domain were decreased in the patients with SSc.

II AWARD

15 Serum erythropoietin level and other hematological indicies in patients with rheumatoid arthritis treated with infliximab – TNF-α antagonist

Małgorzata Widuchowska, Eugeniusz Józef Kucharz

Chair and Department of Internal Diseases and Rheumatology, Medical University of Silesia, Katowice, Poland

INTRODUCTION AND OBJECTIVES TNF-α plays a significant role in the pathogenesis of RA and in the development of anemia of chronic disease.
The aim of the study was to determine whether and to what extent infliximab – TNF-α antagonist – has an impact on the serum erythropoietin level and hematological indices in patients with full remission, in patients with partial clinical response and in patients with anemia.
METHODS The study group consisted of 17 female patients with active RA treated with infliximab. The study group was divided into subgroups depending on the clinical response and hematological status.
RESULTS In the subgroup of patients with full remission a significant decrease in the acute phase indices and an improvement in hematological indices were observed. After the first infusion of infliximab, the erythropoietin level increased significantly, while the other indices were not altered yet. In the subgroup with partial clinical response after the fourth infusion a gradual increase in the acute phase indices was observed. Although the hemoglobin level did not change, the erythropoietin level increased significantly. In the subgroup with anemia, the disease activity and the erythropoietin level decreased while the hematological indices increased. In the subgroup without anemia the hemoglobin level did not change and the disease activity decreased significantly after first infusions, whereas the erythropoietin level was increasing continuously during the observation period.
CONCLUSIONS Administration of TNF-α antagonist – infliximab – results not only in a decrease in the disease activity, but also in an improvement in the hematological indices and the indices of iron metabolism. The effect of infliximab on hematological indices is associated mainly with a reduction in the inflammation process, which results in the improvement in erythropoiesis. Administration of infliximab seems to unblock the production of endogenous erythropoietin in patients with RA.

16 Serum level of tumor necrosis factor-α in rheumatoid arthritis patients treated with etanercept

Katarzyna Jankiewicz-Ziobro, Eugeniusz Józef Kucharz

Chair and Clinic of Internal Medicine and Rheumatology, Medical University of Silesia, Katowice, Poland

INTRODUCTION AND OBJECTIVES RA is a chronic autoimmunological disease of unknown origin. TNF-α is one of the inflammatory cytokines in RA. Etanercept, antagonist of TNF-α, is a fusion protein, consisting of extracellular domain of receptor p75 and Fc portion of human immunoglobulin IgG1. It binds 2 domains of TNF-α.
The aim of the study was evaluation of serum TNF-α level in patients with RA treated by etanercept and evaluation correlation between TNF-α level, disease activity and serum rheumatoid factor.
METHODS 24 patients treated with etanercept were assessed. TNF-α level was measured before treatment and after 6 months therapy. TNF-α was determined with ELISA (BioMedica). ESR, CRP level and DAS28 were assessed too. Patients were devided into seropositive and seronegative group. According to ESR, CRP level and DAS28 3 groups were separated (high, medium and low disease activity).
RESULTS TNF-α level was increased after 6 months therapy, CRP level, ESR, DAS28 were decreased. Results in patients seropositive and seronegative were similar. Treatment response was good in 12 patients, medium in 5 patients, no response was observed in 7 patients.
CONCLUSIONS TNF-α level is increased aside from rheumatoid factor and treatment response. It is unclear if TNF-α level increased in relationship to enhanced level of active TNF-α or the obtained result is false positive due to determination unspecificity.

17 The influence of red wine and ethanol consumption on the platelet-derived selectin P, tissue factor and its inhibitor plasma level in healthy volunteers

Magdalena Węglarz[1], Władysław Sinkiewicz[1,2], Ewa Żekanowska[3]

1 Department of Cardiology, Division of Cardiology Diagnostics, Bydgoszcz Regional Hospital, Bydgoszcz, Poland
2 Department of Clinical Bases of Physiotherapy, Collegium Medicum of Nicolaus Copernicus University, Bydgoszcz, Poland
3 Department of Pathophysiology, Collegium Medicum of Nicolaus Copernicus University, Bydgoszcz, Poland

INTRODUCTION AND OBJECTIVES In atherosclerotic vessels activation of the prothrombotic process is partly dependent on over-expression of TF and malfunction of the TFPI. Selectin P plays the role in an increased activation of thrombocytes and in inflammatory reactions related to monocytes/macrophages infiltrate.
Data from epidemiological studies suggest that moderate alcohol consumption, especially red wine containing polyphenols, may decrease risk of atherosclerotic complications.
The aim of the discussed study was to evaluate TF, TFPI and selectin P plasma levels after consumption of 300 ml of 14% ethanol, red and white wine, black current juice and water for 5 consecutive days.
METHODS 59 healthy men aged 23–26, abstainers, were divided into 5 groups consuming the above mentioned beverages. On the first day before the intervention and on the sixth day the measurements of TF, TFPI and selectin P blood plasma levels were performed.

RESULTS The consumption of 14% ethanol resulted in a significantly higher level of TF ($p = 0.046$), an insignificant raise in TFPI and a significant decrease in selectin P levels ($p = 0.0128$) on the 6th day. After consumption of red wine a significant reduction in the level of TFPI ($p = 0.0005$) and a trend towards a decrease in TF levels were observed. The other tested drinks did not have any influence on tested parameters.

CONCLUSIONS After ethanol consumption both activation of clotting dependent on the tissue factor and suppression of platelet activation expressed by a fall in the selectin P level were observed. Red wine influence on the studied parameters may be a result of the polyphenolic content activity. Short-term consumption of a relatively large amount of alcohol by healthy abstainers may have a negative influence on hemostatic risk factors.

18 Lipid profile and thyrometabolic state in patients with rheumatoid arthritis treated with anti-tumor necrosis factor-α antibody (infliximab)

Przemysław J. Kotyla[1], Maciej Lewicki[1], Jarosław Rakoczy[2], Eugeniusz J. Kucharz[1]

1 Department of Internal Medicine and Rheumatology, Medical University of Silesia, Katowice, Poland
2 Department of Radiology, Teaching University Hospital No 7, Medical University of Silesia, Katowice, Poland

INTRODUCTION AND OBJECTIVES RA is a chronic inflammatory artropathy of unknown origins. In the course of the disease autoimmunological phenomena could be observed that may exert their impact upon thyroid function and contribute to the development of premature arteriosclerosis.
The aim of the study was the evaluation of the influence of anti-TNF-α treatment upon some lipid parameters and thyroid function.

METHODS The study included 30 patients with RA aged 28–65 (mean age 50.6 ±10.6 years). The patients were randomly selected from the biologic register of the Department of Internal Medicine and Rheumatology, Medical University of Silesia. The following examinations were done in every patients: RA activity, thyrometabolic state, size, volume and the presence of incidentalomas in thyroid glands, anti-thyroids antibody and full lipid profile. The parameters were assessed before the study and repeated after 12 months of infliximab therapy given in a cumulative dose of 36 mg/kg.

RESULTS Hypothyroidism was present in 5 patients (17%) before the study. The ultrasound examination revealed enlargement of thyroid glands in 3 patients (10%) and the presence of incidentalomas in 5 patients. The treatment with infliximab did not change the TSH and fT_3 levels. A significant reduction in the fT_4 level was observed at the end of the study. A reduction in anti thyroid antibody levels was also noticed. These changes however did not reach the level of statistical significance. Moreover, a reduction in HDL cholesterol (61.1 ±18 vs. 56 ±14 mg/dl) and triglyceride levels (160 ±17.3 vs. 156 ±30 mg/dl) that went together with increment of the total cholesterol level (210 ±17.6 vs. 236 ±38 mg/dl) was found.

CONCLUSIONS None of these changes were statistically significant.

19 Outcomes in type 2 diabetes patients after a stroke

Paweł Luźniak, Anna Czech, Agnieszka Wojciechowska-Luźniak, Jan Tatoń

Chair and Department of Internal Medicine and Diabetology, Medical University of Warsaw, Warszawa, Poland

INTRODUCTION AND OBJECTIVES Strokes occur more commonly among type 2 diabetes patients, result in a higher number of complications and are the main cause of death. The objective of the study was an assessment of the outcomes after a stroke.

METHODS A group of 100 patients was observed after their first stroke episode.

RESULTS Ischemic strokes and hemorrhagic strokes have been diagnosed in 72% and 13% of the subjects, respectively, and in 15% of the subjects the stroke category has not been determined. The mean age at the time of the first cerebral incident diagnosis was 69.8 ±9.8 years, while the mean duration of diabetes was 13.4 ±6.6 years. The first stroke was fatal in 34% of the subjects. The follow-up period ranged from 1 day to 8 years. During the further follow-up, subsequent stroke episodes occurred in 16% of the patients. A period between the first and the second stroke ranged from 2 months to 8 years. A total of 66% of the patients died. The mean time between the first stroke and death was 1.3 ±2.1 years or 3.4 ±2.2 years, when calculated only for the subjects who survived 30 days after the stroke. Most fatal cases were caused by a stroke. The study showed the following factors, which statistically significantly increased the risk of death due to a stroke: age, postprandial glycemia >160 mg/dl, daily proteinuria, smoking, atrial fibrillation and a positive history of a stroke.
During the follow-up, ischemic heart disease was found in 80% and peripheral arterial occlusive disease in 21% of the study group patients.

CONCLUSIONS The study confirmed that patients after a stroke are at extremely high risks of death, occurrence of another stroke episode and development of other macroangiopathic complications.

20 Outcomes of type 2 diabetes patients after myocardial infarction

Paweł Luźniak, Anna Czech, Agnieszka Wojciechowska-Luźniak, Jan Tatoń

Chair and Department of Internal Medicine and Diabetology, Medical University of Warsaw, Warszawa, Poland

INTRODUCTION AND OBJECTIVES MI is one of the most dangerous complications in type 2 diabetes patients. The objective of the study was an assessment of the outcomes after MI.

METHODS The study enrolled 176 patients after their first MI.

RESULTS Anterior and inferior wall MI have been diagnosed in 31.3% and 27.3% of the patients, respectively.

The remaining 41.4% of the patients had infarctions of other or mixed locations. The mean age of the patients at the time of the first MI diagnosis was 67.2 ±9.5 years, while the mean duration of diabetes was 13.4 ±6.3 years. In 40.9% of the patients, MI was the first symptom of ischemic heart disease. The first MI proved fatal for 23.9% of the patients. The follow-up period ranged from 1 day to 8 years. During the further follow-up, subsequent MI occurred in 10.8% of the subjects and were fatal for 13. A period between the first and the second infarction ranged from 2 months to 7 years. A total of 57.4% of the subjects died. The mean time between the first MI and death was 1.7 ±2.2 years or 2.9 ±2.1 years, when calculated only for the patients who survived 30 days after MI. MI was the main cause of death in the study group. The study showed the following factors, which statistically significantly increased the risk of death due to MI: age, male sex, diabetes duration and previously diagnosed ischemic heart disease or peripheral arterial occlusive disease. A stroke and peripheral arterial occlusive disease have been diagnosed in 18.7% and 18.2% of the study group patients, respectively.

CONCLUSIONS The study demonstrated how dramatically the prognosis worsens for patients after MI.

21 Estimation of severity and predicting the outcome of *Escherichia coli* bloodstream infections with the use of Simplified Acute Physiology Score II and Glasgow Clinical Score

Aleksandra M. Kicińska, Monika Lichodziejewska-
-Niemierko, Bolesław Rutkowski

Department of Nephrology Transplantology and Internal Medicine, Medical University, Gdańsk

INTRODUCTION AND OBJECTIVES Bloodstream infections are a serious problem in medicine. They are associated with significant patient morbidity and mortality, because they may lead to life-threatening sepsis. An assessment of severity of the disease with the use of predictors of the outcome are very important for the clinicians.

The aim of the study was a prospective analysis of the clinical course and the evaluation of clinical response in 149 consecutive patients of the University Hospital in Gdańsk in whom blood cultures revealed *Escherichia coli*.

METHODS GCS and SAPS II were used in order to evaluate their applicability and value in various clinical settings (only 11 patients came from ICU).

RESULTS The mean scores SAPS II in non-survivors were significantly higher than in survivors (69.39 ±14.11 vs. 34.08 ±9.65). Mean scores of SAPS II were increasing with severity of clinical response to infections. Patients with septic shock scored more than 50 points.

The mental state of patients with blood stream infections assessed with the GCS significantly correlated with mortality and morbidity.

CONCLUSIONS It appears that both scales are of significant value in predicting the outcome of patients with *Escherichia coli* bloodstream infections and should not be reserved for ICUs only.

LIST OF ABBREVIATIONS

AAT α-antitrypsin
Ab_{max} maximum absorbancy
ACL IgG anti-cardiolipin IgG antibodies
ACEI angiotensine convertase inhibitors
ADMA asymmetric dimethyl-arginin
ANA antinuclear antibodies
ANCA anti-neutrophil cytoplasmic antibodies
anti-Nε-Hcy-albumin anti-Nε-homocysteinylated albumin
anti-Nε-Hcy-hemoglobin anti-Nε-homocysteinylated hemoglobin
anti-Nε-Hcy-proteins anti-Nε-homocysteinylated proteins
anti-PR3 anti-proteinase 3 antibodies
anty-MPO anti-myeloperoxidase antibodies
APS antiphospholipid syndrome
ARB angiotensin receptor blockers
CAT catalase
CD coeliac disease
CRP C-reactive proteine
CRT cardiac resynchronization therapy
CT computed tomography
D1 type 1 iodothyronine deiodinase
DAS28 disease activity score
D-D max maximum D-dimer concentrations
D-D rate the rate of increase in D-dimer levels
DVT deep vein thrombosis
FNH focal nodular hyperplasia
fT_3 free triiodothyronine
fT_4 free thyroxine
GCS Glasgow Coma Scale
GPx glutathione peroxidase
HAQ health assessment questionnaire
Hcy homocysteine
HDL high-density lipoprotein
HLA human leukocyte antigens
HRV heart rate variability
IgG immunoglobulin class G
IQR interquartile range
IVC inferior vena cava
LVEDD wymiar left ventricular diastolic diameter
LVEF left ventricular ejection fraction
MI myocardial infarction
Nε-Hcy-albumin Nε-homocysteinylated albumin
Nε-Hcy-hemoglobin Nε-homocysteinylated hemoglobin
Nε-Hcy-proteins Nε-homocysteinylated proteins
PAI-1 plasminogen activator inhibitor 1
pNN50 percentage of NN adjacent intervals differing from each other of more than 50 ms
PSV primary systemic vasculitides
RA rheumatoid arthritis
rMSSD root mean square successive difference
SAA serum amyloid A
SAPS II Simplified Acute Physiology Score
SD standard deviation
SDANN standard deviation of the averages of NN intervals in all 5 min-segments of the entire recording)
SDMA symmetric dimethyl-arginine
SDNN standard deviation of all NN intervals
selectin P platelet selectin
sFLC serum free light chains
SLE systemus lupus erythromatosus
SOD superoxide dismutase
SSc systemic sclerosis
t½ clot lysis time
T_3 triiodothyronine
T_4 thyroxin
TBARS thiobarbituric acid reactive substances
TF tissue factor
TFPI tissue factor pathway inhibitor
tHcy total homocysteine
TNF-α tumor necrosis factor α
tPA tissue plasminogen activator
TSH thyroid-stimulating hormone
WG Wegener's granulomatosis