

CONTENTS

1. Human endothelial cell culture: a useful tool for endothelial research
V Paunescu, Ioana Raluca Siska, Erica Suciu, Gabriela Tănasie, Daniela Crîsnic, Carmen Bunu
2. Identification of several transitional cell phenotypes in a case of hairy cell leukaemia (HCL)
V Dumitraşcu, CA Tatu, V Păunescu, Diana N Szilagyi, Daniela Grecu, Hortensia Ioniță, Fr Schneider
3. Comparative immunophenotyping of malignant T cells from a lymph node biopsy and peripheral blood of a patient with cutaneous lymphoma: A possible HTLV-1 etiology
V Dumitraşcu, V Păunescu, CA Tatu, Daniela Grecu, Diana Szilagyi, Adelina Tudor, Hortensia Ionita, Fr Schneider
4. Venous lactate as parameter of efficiency of exercise training in patients after cardiosurgery
Simona Drăgan, Silvia Mancaş, E Melcescu, Ioana Siska, Şt I Drăgulescu
5. The effect of low temperatures on in vitro reactivity of isolated human bronchi
Gabriela Tănasie, Ioana-Raluca Siska, Georgeta Mihalaş, Alexandru Nicodim, Francisc Schneider
6. Effects of some vasodilators on KCl-induced cardiac arrhythmias. Experiments carried out by intrathecal administration in anesthetized rat
Alina Cuprian, B Cuparencu, Vl Şandor
7. Dyslipidemia: an early risk factor for atherogenesis in type 2 diabetes mellitus
O Fira-Mladinescu, Doina Marcus, Danina Muntean, Simona Talpeş, Corneluța Fira-Mladinescu
8. Book review: Introduction In Clinical Physiology
Virgil Paunescu

1. HUMAN ENDOTHELIAL CELL CULTURE: A USEFUL TOOL FOR ENDOTHELIAL RESEARCH

V Paunescu, Ioana-Raluca Siska, Erica Suciu, Gabriela Tănasie, Daniela Crîsnic, Carmen Bunu
Department of Physiology, University of Medicine and Pharmacy "Victor Babeş" Timișoara

Address for correspondence: Dept. of Physiology, University of Medicine and Pharmacy "Victor Babes", P-ta E. Murgu no.2, RO-1900 Timisoara, Romania

ABSTRACT

Endothelium plays a major role in cardiovascular homeostasis. Endothelial cells are involved in vascular smooth muscle tone regulation, hemostasis and fibrinolysis control, participation to immune surveillance, inflammation, atheroma formation, as well as in metastasis development. Endothelial cell culture allows the study of all these processes, and also the investigation of endothelial heterogeneity, which is probably a significant factor in some pathological conditions. This article reviews human endothelial cells types available for research, the protocol for isolation and culture of human umbilical vein endothelial cells (normal endothelial cells, easily available), as well as human endothelial cells derived from hematopoietic stem cells. Finally, aspects concerning endothelial seeding of vascular grafts, and circulating endothelial cells are detailed.

Key words: human endothelial cells, culture, stem cells, endothelialization of vascular grafts

2. IDENTIFICATION OF SEVERAL TRANSITIONAL CELL PHENOTYPES IN A CASE OF HAIRY CELL LEUKAEMIA (HCL)

V Dumitraşcu¹, CA Tatu², V Paunescu², Diana N Szilagyi³, Daniela Grecu³, Hortensia Ionita⁴, F Schneider⁵

¹ Department of Pharmacology;

² Department of Immunology;

⁴ Department of Hematology, University of Medicine and Pharmacy "Victor Babeş" Timisoara,

³ Clinic Laboratories, County Hospital Timisoara,

⁵ Department of Physiology, Western University "Vasile Goldiș", Arad

Address for correspondence: Department of Pharmacology, University of Medicine and Pharmacy "Victor Babeş", P-ta E. Murgu no.2, RO1900 Timisoara, Romania

ABSTRACT

We describe in our study a case of hairy cell leukemia, the phenotype of the malignant cells being characterized by flow-cytometry. The hairy cells seem to be a heterogeneous population, with variable size, granularity and a gradient expression of CD5 on their surface. The significance for this variability is not known, however, it is possible that a genetic lesion in the pluripotent stem cell is responsible for it, whose consequences are variably modulated by the complex intercellular interactions during B cell development.

Key words: hairy cell leukemia, B lymphocyte, CD5, flow-cytometry

3. COMPARATIVE IMMUNOPHENOTYPING OF MALIGNANT T CELLS FROM A LYMPH NODE BIOPSY AND PERIPHERAL BLOOD OF A PATIENT WITH CUTANEOUS LYMPHOMA: A POSSIBLE HTLV-1 ETIOLOGY

V Dumitrascu¹, V Paunescu², CA Tatu², Daniela Grecu³, Diana Szilagyi³, Adelina Tudor¹, Hortensia Ionita⁴, F Schneider⁵

¹ Department of Pharmacology;

² Department of Immunology;

⁴ Department of Hematology, University of Medicine and Pharmacy "Victor Babeş" Timișoara

³ Clinical Laboratory, County Hospital Timișoara

⁵ Department of Physiology, Western University "Vasile Goldiș", Arad

Address for correspondence: Department of Pharmacology, University of Medicine and Pharmacy "Victor Babeş", P-ta E. Murgu no.2, Timișoara, Romania

ABSTRACT

A case of adult T-cell leukaemia/lymphoma is described in our study. HTLV-1 infection is rare in Romania, only a few cases being identified so far. The malignant T cells have distinct phenotype, with a lower expression of CD3 and a higher expression of CD5 and also presenting the CD25 marker. The clinical course of the leukemia was aggressive, the patient eventually deceasing from the complications of the disease.

Key words: T-cell leukemia. HTLV infection

4. VENOUS LACTATE AS PARAMETER OF EFFICIENCY OF EXERCISE TRAINING IN PATIENTS AFTER CARDIOSURGERY

Simona Drăgan, Silvia Mancaș, E Melcescu, Ioana Siska, Șt I Drăgulescu

University Of Medicine and Pharmacy „Victor Babeş” Timișoara, Romania

Address for correspondence: University of Medicine and Pharmacy "Victor Babeş", P-ta E.Murgu. no.2, RO1900 Timisoara, Romania

ABSTRACT

Deconditioning is common in coronary patients after CABG. Rehabilitation programs differ considerably. The present study is designed to compare the efficiency of fractioned versus continuous training related to a control group without training in rehabilitation after cardiosurgery according to the evolution of venous lactate as metabolic parameter.

The study was carried out on 55 coronary patients 3 weeks after surgery in stable condition. Inclusion criteria were the absence of angina pectoris or ischemia induced by stress and EF>40%.

The patients were randomized into two groups: group A (training) comprised 35 patients, divided into group 1 (n=20) on fractionated training and group 2 (n=15) continuous training. 20 patients in group B served as controls and were not randomized to any training group.

The study demonstrates that the maximum benefit for patients is obtained by fractionated compared to continuous training or to lack of training.

Key words: venous lactate, exercise training, cardiosurgery

5. THE EFFECT OF LOW TEMPERATURES ON IN VITRO REACTIVITY OF ISOLATED HUMAN BRONCHI

Gabriela Tănăsie, Ioana-Raluca Siska, Georgeta Mihalaş, Alexandru Nicodim¹, Francisc Schneider

Department of Physiology,

¹Department of Thoracic Surgery,

University of Medicine and Pharmacy “Victor Babeş” Timișoara

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy “Victor Babeş”, P-ta E. Murgu no.2, RO1900 Timișoara, Romania

ABSTRACT

Ventilation with cold air can result in enhanced bronchoconstriction. The effects of temperature have been studied on a variety of animal tissues, but there are only a few studies concerning the responsiveness of human airways. The aim of our study was to investigate the contractile response of human isolated small bronchi maintained at different levels of temperatures. We studied the bronchial reactivity on 37°C, 20°C and 10°C. Acetylcholine and histamine were used as contractile agents. We also performed a parallel set of experiments using isolated bronchial segments without epithelium. Our results concurred with other studies on isolated airways and showed increasing smooth muscle reactivity at low temperatures. Epithelial removal supplementary enhanced this response.

Key words: human bronchi, in vitro experiments, temperature, bronchial epithelium

6. EFFECTS OF SOME VASODILATORS ON KCL-INDUCED CARDIAC ARRHYTHMIAS. EXPERIMENTS CARRIED OUT BY INTRATHECAL ADMINISTRATION IN ANESTHETIZED RAT

Alina Cuprian¹, B Cuparencu², Vi Şandor³

¹ Department of Pharmacology, University of Oxford, UK

² Department of Pharmacology, University of Oradea, Romania

³Department of Pharmacology, University of Medicine and Pharmacy, Cluj -Napoca, Romania.

ABSTRACT

The aim of our research was to analyze the effects of several vasodilators (vinpocetine, dipyridamole, papaverine) on the spinal - originated cardiac arrhythmias. KCl induced a significant bradycardia and reproducible cardiac arrhythmias (sinus arrests, sinus arrhythmias, atrioventricular blocks, ventricular extrasystoles). Vinpocetine itself caused a nonsignificant transient bradycardia and induced a nonsignificant decrease of the bradycardic effect of KCl, but had a marked influence upon the arrhythmogenicity of KC (arrhythmogenic index = 0). Dipyridamole caused approximately the same changes, as did vinpocetine. Papaverine had in some extent a different behaviour: medium doses produced transient tachycardia, whereas higher doses evoked transient bradycardia. The medium and the highest dose had a slight arrhythmogenic activity, the AI decreasing to 0 just in case of the lowest concentration.

Key words: cardiac arrhythmias, vasodilators, arrhythmogenic index

7. DYSLIPIDEMIA: AN EARLY RISK FACTOR FOR ATHEROGENESIS IN TYPE 2 DIABETES MELLITUS

O Fira-Mladinescu¹, Doina Marcus², Danina Muntean¹, Simona Talpeș², Corneluța Fira-Mladinescu¹

¹“Victor Babes” University of Medicine and Pharmacy, Timisoara

²Western University “Vasile Goldis”, Arad

Address for correspondence: Department of Pathophysiology, “Victor Babes” University of Medicine and Pharmacy, P-ta Eftimie Murgu nr. 2, RO-1900, Timisoara, ROMANIA. E-mail: ofira@posta.umft.ro

ABSTRACT

Introduction. Traditional coronary artery disease risk factors account for only 20-50% of the increase in the atherosclerotic risk, so other less well identified abnormalities that exist in patients with diabetes are clearly important. Hyperglycemia is a very late stage in the sequence of events that leads from insulin resistance to diabetes, but dyslipidemia could have an earlier important contribution to the increased risk of macroangiopathy.

Materials and methods. The parameters analyzed at 50 patients with noninsulin-dependent diabetes mellitus (NIDDM) were: triglycerides, cholesterol, HDL cholesterol, lipoprotein (a), fibrinogen, the dilute clot lysing time.

Results and conclusions. (1) In patients with type 2 diabetes mellitus the plasma lipids are characterised by hypertriglyceridemia, triglycerides > 150 mg% (1.7 mmol/l), and borderline hypercholesterolemia, total cholesterol 200-250 mg% (5.2-6.4 mmol/l). In the most frequent association in practice, NIDDM - obesity, triglycerides values were further elevated above 200 mg% (2.3 mmol/l), which induced both HDL-cholesterol levels below 40 mg% (1.03 mmol/l) and the appearance of small, dense LDL (conditions that define atherogenic dyslipidemia). (2) Elevated serum values of lipoprotein (a) above the critical level of 30 mg% are characteristic only for patients with a history of diabetes for at least 10 years, whilst no correlation was found between dyslipidemia and the duration of diabetes. (3) There is a strong positive correlation between the plasma levels of triglycerides and of lipoprotein (a) and hypofibrinolytic status of NIDDM.

Key words: diabetes mellitus type 2, atherosclerosis, dyslipidemia, hypofibrinolytic status

8. BOOK REVIEW: INTRODUCTION IN CLINICAL PHYSIOLOGY

Francisc Schneider

“Viața Medicală Românească” Publishing House – București, 2002, 142 pages, ISBN: 973-8437-02-4

The issue of the book “Introduction in Clinical Physiology” represents a special achievement by the necessity of actualization in a field in which many novelties were brought.

At this time, when the functions of various tissues and organs are interpreted from the biochemical and ultrastructural points of views, Physiology, one of the fundamental disciplines of the medical sciences benefits from the many acquisitions of biochemistry, histochemistry, cellular biology and other disciplines.

In this second edition of “Introduction in Clinical Physiology” (after 25 years from the first edition), the author makes new reconsiderations about essentials of cellular physiology, receptors physiology, neuronal physiology, muscle physiology, and regulation of body functions. The book has an excellent presentation, is structured in 12 chapters, contains 142 pages, fully illustrated with suggestive images, and reaches many aspects of the human physiology, presenting the author's points of view in this field. The figures show a suggestive illustration of the action and regulation mechanisms discussed in the text.

In the beginning of the book, the author underlines the fact that physiology studies are closely related to the development of science and technology. Therefore, modern medicine reflects all new achievements of physiology due to evolution of technology, achievements to be applied in the study

of human body. For this reason, the term of clinical physiology can be considered the most appropriate one.

After this inspired introductory remark, an overview of morphological and functional cellular organization follows. Classical and new data concerning cell metabolism, energogenesis, and the importance of oxygen reactive species are briefly presented. The most important features of cell membrane and receptors physiology are also detailed. An interesting chapter is devoted to cell automatism, in which differentiated cell functions, functional status, cell functional capacity, and also cell ontogenesis are described.

Chapters devoted to the neuronal and muscular fiber physiology are generous but synthetic, endowed with useful and logical images and tables.

The essential and necessary links between human body and environment are presented in a separate chapter.

In the last chapter of the book the author presents the complexity of the physiological mechanisms involved in the regulation of body functions, including the nervous and hormonal regulation.

The volume is the result of a great theoretical study, reflects the large experience in this field accumulated by the author through the 40 years of research in the field of physiology, which is reflected in the bibliography.

The present book is useful not only to researchers in this domain but also to doctors and is a useful guide to the students, having plenty of examples describing the action mechanisms involved in the main biological functions.

Considering its scientific and didactic value, and also its actuality, the “Introduction in Clinical Physiology” is an important book in this field.

Virgil Păunescu