Pathophysiology (veterinary course)

Department of Internal Medicine and Clinics

Location: 3rd year 1st semester
Lecture: 45
Seminar: 30
Credit: 5
Evaluation: Oral exam (colloquium)

Lecturer

Lecturer: Prof. Tibor Gaál, DVM, PhD
vice head of the department
Available: building "A", 1st floor
E-mail: Gaal.Tibor @ aotk.szie.hu
Consultation hour: according to previous discussion

Lectures

Location: Building O, lecture hall of Internal Medicine Department
Time: Monday 13:15–14:00, Tuesday 08:15-09:00, 09:15-10:00

Preliminary courses needed

Biochemistry, Physiology, Anatomy, Histology final exam, Botany colloquium

Short description

Pathophysiology is a branch of scineces which deals with the development/pathomechanism of diseases and partly with its consequences. It can be taken as an integral part of pathology together with pathoanatomy.. It is a pre- and paraclinical subject, preceeding the education of clinical subjects offering a good theoretical basis for further diagnostic and therapeutic work.. While studying pathophysiology students will be given opportunity to acquire the basic skills of medical way of thinking, making deductions and syntheses, which are necessary for studying clinical subjects.
A special goal of teaching pathophysiology is to introduce the elements of clinical pathology for students, to form a useful theoretical basis before teaching „Applied Clinical Pathology", an elective subject at our Faculty.

Lectures

1. General pathophysiology (15 hours)

Topic	Hours
Introduction and general information. The subject of pathophysiology and its relation to other subjects. Notions of illness and health. Alterations of isovolaemic and isoosmotic conditions	2
Disturbances in water balance (dehydration, overhydration). Edema	1
Ion balance and its alterations I. ($Na^{+,}$ K^{+}, Cl^{-}, Ca^{2+}).	2
Alterations of ion balance II. (Mg^{2+}, PO_4^{2-}). Tetany	1
Changes in isohydria (acid-base disturbances).	1

Thermoregulation disorders. Heat stroke and fever	1
Stress. Basic notions concerning altered specific immune reactions	1
Disorders of haemostasis.	1
Damages of the antioxidant system.	1
Pathophysiology of inflammation	1
Disturbances in amino acid and protein metabolism	1
Main disturbances in carbohydrate metabolism I.	1
Main disturbances in carbohydrate metabolism II. Disturbances in lipid metabolism	1

2. Systemic pathophysiology (30 hours)

Topic	Hours
Injuries of red blood cells. Disturbances of O_2 transport. Anaemias	2
Alterations of white blood cells	1
Adaptation of the heart to the higher demand of tissues. Heart insufficiency.	2
Shock	1
Disorders of the external breathing I-II. (ventilation, diffusion, perfusion, tissue hypoxy).	3
Abnormal food consuming, chewing and swallowing. Disturbances of forestomach motility	2
Disturbances of ruminal carbohydrate, nitrogen and lipid metabolism	1
Ruminal bloat. Abomasal dysfunctions.	1
Disturbances of the monogastric functions. Vomiting.	1
Disturbances of intestinal motility. Constipation and ileus. Hyperpermotility.	1
Disturbances of intestinal digestion. Maldigestion, malabsorption and diarrhoea	1
Disturbances of liver functions. Jaundice. Changes of protein, carbohydrate and lipid metabolism in the liver	2
Deterioration of detoxification capacity of the liver. Liver insufficiency of vascular origin. Ascites.	1
Renal disturbances. Glomerulopathies and tubular malfunctions. Renal insufficiency.	2
Gout as renal insufficiency in birds and reptiles. Disturbances of the lower urinary tract.	1
Osteopathies	1
Disturbances of brain functions	1
Disturbances of spinal cord functions.	1
Abnormal reflexes	1
Malfunction of the synapses.	1
Muscular dysfunctions	1
Pathoendocrinology I-II.	2

Seminars/practical lessons *(2 hours weekly, total 30 hours)*

Location: Building O, students' laboratorium

1. Changes of isovolaemia, isoionia
2. Changes of isohydria (acid-base balance)
3. Changes of haemostasis
4. Changes of metabolic parameters (proteins, carbohydrates, lipids)
5. Examination of red blood cells, and on anaemia
6. Examination of white blood cells and analysis of the inflammatory processes
7. Examination of shock and respiration

8. Examination on ruminal fluid
9. Examination of the pathologic intestinal function, and the pancreatic exocrine function
10. Examination of bilirubin (br) metabolism and the excretory function of the liver
11. Examination on hepatc enzymes, bile acids and ammonia
12. Examination on kidney function
13. Urinalysis
14. Examination of the body cavity fluids and the cerebrospinal fluid
15. Retake of missed seminars

Evaluation

Two written tests of topics of the practical lessons should be filled up during the semester. In both tests short answers should be given to two questions.
Oral exam: at the end of the semester, based on evaluation of 3 questions from the topics of the theoretical lectures and 2 questions of the seminars.

Subscription of the black book (index) requires that the student did not miss more than two seminars and that the student retook the missed seminars; the results of the written tests during the semester was minimum Grade 2 or better. Unsuccessful written test can be rewrited once.

Information about the exams

Schedule:	at the end of the semester, during the exam period
Location of exams:	Mócsy library room or other office at the Department of Internal Medicine (Building A), and the Student's Pathophysiology laboratory (Building O)
Start at:	07:30
Application:	via NEPTUN system and/or in person
Postponing:	at last one day before the exam until 12.00 hour in person/via the NEPTUN system

Suggested readings

- Gaál, T.: Handouts to lectures of Veterinary Pathophysiology (2006)
- Robinson W.F., Huxtable C.R.R.: Clinicopathological principles for veterinary medicine. Cambridge University Press. Cambridge. 1988.
- Dunlop, H. R., Malbert, Ch-H.: Veterinary Pathophysiology. Blackwell Publishing, 2004.

Auxiliary readings

- Vajdovich, P.: Handouts for Practical Lessons in Pathophysiology.
- Pages of several books related to lectures and practical lessons in Pathophysiology