Discipline MCP5867
Pathophysiological Bases and Clinical Practice of Arterial Hypertension

Concentration area: 5131

Creation: 20/01/2022

Activation: 20/01/2022

Credits: 2

Workload:

Theory (weekly)	Practice (weekly)	Study (weekly)	Duration	Total
10	10	10	1 weeks	30 hours

Professors:

Luiz Aparecido Bortolotto

Maria Claudia Costa Irigoyen

Luciano Ferreira Drager

Objectives:

Course directed for post-graduate doctors and other health professionals with scientific interest in the area of Hypertension. The main objective is to enable students to apply knowledge in research and clinical practice of the fundamental concepts in Arterial Hypertension.

Rationale:

High blood pressure is a medical condition that presents more interfaces with different medical specialties and also other areas of health, and that has shown the greatest developments in recent years, since a better understanding of the genetic changes and pathophysiologic that lead to disease, until the latest forms of treatment, including new technologies. Among the medical areas, stands out as the greatest example of translational medicine, integrating perfectly the teachings of basic area with the implementation of practice and clinical research. In this regard, the Hypertension Unit of the Heart Institute is a pioneer in this integration, enabling the development of several lines of experimental research coupled with human studies, allowing a more comprehensive understanding of the disease that more affects the Brazilian population. The team is recognized as the main study group in Arterial Hypertension in the country, with researchers and physicians with post-doctoral degrees, including coordinators, and has several original international publications with many citations. In addition, due to collaboration with international researchers, it is possible to integrate them in the dissemination of knowledge during the course. Since its beginning as a course of the Department of Cardiology and Pneumology, has provided the participation of post-graduates from different areas of medicine and from other professional areas in health, always obtaining excellent evaluation by students. Thus, the request for restoration is justified, with a new program proposal including the participation of international researchers with conferences in the English language, allowing greater dissemination of knowledge in the area.

Content:

Theoretical classes/International Conferences (each class = 1 hour). Total 10 hours Mechanisms of blood pressure control – Short-Term: neurogenic Control (autonomic nervous system), Hormonal control (renin angiotensin-aldosterone system, endothelium);- Long-term (Kidney, Body liquids). Early vascular Aging Inflammation, endothelium and hypertension Clinical Bases of the pathophysiology of primary arterial hypertension Target organ impairment in arterial hypertension: heart, kidneys, vessels and brain Cognitive function in hypertension Relationship of Salt Excess with cardiovascular risco and hypertension Evidence of the benefits of the non-pharmacological treatment of hypertension: Physical activity, salt restriction, weight control, stress modulation. Non-obstructive coronary insufficiency in hypertension Pathophysiological and clinical Bases of the treatment of arterial hypertension Practical classes and seminars: duration 2 hours: Total 10 hours Hands-on methods of arterial stiffness, endothelial function and sympathetic activity – practical classroom Arterial Hypertension as metabolic disease: mechanisms and clinical approach-seminar Blood pressure measurements in clinical practice: Office, ABPM, home measurement and noninvasive central pressure measurement – Seminar Secondary causes of arterial hypertension: Renovascular, primary hyperaldosteronism, obstructive sleep apnea, pheochromocytoma -Seminar Critical analysis of the Arterial Hypertension Guidelines – Seminar Study Hours and seminar preparation (Total 10 hours)

Type of Assessment:

1. Use and participation during classes and discussions (responsible teachers encourage and will be present in all classes) 2. Elaboration of a proposal for a research project on arterial hypertension.

Notes/Remarks:

Faculty: Profa. Maria Cláudia da Costa Irigoyen, Prof. Dr. Luiz Aparecido Bortolotto, Prof. Dr. Luciano Ferreira Drager, Profa. Dra. Fernanda Marciano Consolim-Colombo, Prof. Dr. Heno Ferreira Lopes, Prof. Dr. José Jayme Galvão de Lima, Dr. Thiago Macedo. Minimum number of students: 8 Maximum number of students: 20

Bibliography:

Hipertensão Arterial: bases fisiopatológicas e prática clínica. Krieger EM (coord), Lopes HF (org), Bortolotto LA, Consolim-Colombo FM, Giorgi DMA, de Lima JJG, Irigoyen MC, Drager LF (eds). São Paulo, Editora Atheneu, 2013. Módulo de Hipertensão. Reduzindo o impacto das Doenças. Kalil & Fuster-Medicina Cardiovascular. São Paulo, Editora Atheneu, 2016. Gil JS, Drager LF, Guerra-Riccio GM, Mostarda C, Irigoyen MC, Costa-Hong V, Bortolotto LA, Egan BM, Lopes HF. The impact of metabolic syndrome on metabolic, pro-inflammatory and prothrombotic markers according to the presence of high blood pressure criterion. Clinics (Sao Paulo). 2013;68(12):1495-501. Ojeda NB, Grigore D, Alexander BT. Developmental programming of hypertension: insight from animal models of nutritional manipulation. Hypertension. 2008;52:44-50. Saito I, Kario K, Kushiro T, Teramukai S, Yaginuma M, Mori Y, Okuda Y, Shimada K. Home blood pressure and cardiovascular risk in treated hypertensive patients: the prognostic value of the first and second measurements and the difference between them in the HONEST study. Hypertens Res. 2016;39(12):857-862. Stevens SL, Wood S, Koshiaris C, Law K, Glasziou P, Stevens RJ, McManus RJ. Blood pressure variability and cardiovascular disease: systematic review and meta-analysis. BMJ. 2016;354:i4098. Pierdomenico SD, Pierdomenico AM, Coccina F, Clement DL, De Buyzere ML, De Bacquer DA, et al. Prognostic Value of Masked Uncontrolled Hypertension. Hypertension. 2018 Oct;72(4):862-869. Barbé F, Durán-Cantolla J, Sánchez-de-la-Torre M, Martínez-Alonso M, Carmona C, Barceló A, et al; Spanish Sleep And Breathing Network. Effect of continuous positive airway pressure on the incidence of hypertension and cardiovascular events in nonsleepy patients with obstructive sleep apnea: a randomized controlled trial. JAMA. 2012;307(20):2161-8. Motta E Motta J, Souza LN, Vieira BB, Delle H, Consolim-Colombo FM, Egan BM, Lopes HF. Acute physical and mental stress resulted in an increase in fatty acids, norepinephrine, and hemodynamic changes in normal individuals: A possible pathophysiological mechanism for hypertension-Pilot study. J Clin Hypertens (Greenwich). 2021;23(4):888-894. Reaven GM, Lithell H, Landsberg L. Hypertension and associated metabolic abnormalities--the role of insulin resistance and the sympathoadrenal system. N Engl J Med. 1996;334(6):374-81. Barroso WKS, Rodrigues CIS, Bortolotto LA, Gomes MAM,

Brandão A, Feitosa A et al. Diretrizes Brasileiras de Hipertensão 2020. Arq Bras Cardiol 2021;116(3):516-658. Williams B, Mancia G, Spiering W, Agabiti Rosei E, Azizi M, Burnier M, et al, ESC Scientific Document Group. 2018 ESC/ESH Guidelines for the management of arterial hypertension. Eur Heart J. 2018;39(33):3021-104. Unger T, Borghi C, Charchar F, Khan NA, Poulter NR, Prabhakaran D, Ramirez A, Schlaich M, Stergiou GS, Tomaszewski M, Wainford RD, Williams B, Schutte AE. 2020 International Society of Hypertension Global Hypertension Practice Guidelines. Hypertension. 2020;75(6):1334. Safar ME. Arterial stiffness as a risk factor for clinical hypertension. Nat Rev Cardiol. 2018 Feb;15(2):97-105. Sechi LA, Colussi G, Di Fabio A, Catena C. Cardiovascular and renal damage in primary aldosteronism: outcomes after treatment. Am J Hypertens. 2010;23(12):1253-60. Whelton PK, Carey RM, Aronow WS, Casey DE Jr, Collins KJ, Dennison Himmelfarb C, et al. 2017ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. Hypertension. 2018;71(6):e13-e115. Bauer F, Seibert FS, Rohn B, Bauer KAR, Rolshoven E, Babel N, Westhoff TH. Attended Versus Unattended Blood Pressure Measurement in a Real Life Setting. Hypertension. 2018;71(2):243-249. Herrmann SM, Saad A, Textor SC. Management of atherosclerotic renovascular disease after Cardiovascular Outcomes in Renal Atherosclerotic Lesions (CORAL). Nephrol Dial Transplant. 2015;30(3):366-75. Lopes HF, Martin KL, Nashar K, Morrow JD, Goodfriend TL, Egan BM. DASH diet lowers blood pressure and lipid-induced oxidative stress in obesity. Hypertension. 2003;41(3):422-30. Lenders JW, Pacak K, Walther MM, Linehan WM, Mannelli M, Friberg P, Keiser HR, Goldstein DS, Eisenhofer G. Biochemical diagnosis of pheochromocytoma: which test is best? JAMA. 2002;287(11):1427-34. Williams B, MacDonald TM, Morant S, Webb DJ, Sever P, McInnes G, Ford I, Cruickshank JK, Caulfield MJ, Salsbury J, Mackenzie I, Padmanabhan S, Brown MJ; British Hypertension Society's PATHWAY Studies Group. Spironolactone versus placebo, bisoprolol, and doxazosin to determine the optimal treatment for drug-resistant hypertension (PATHWAY-2): a randomised, double-blind, crossover trial. Lancet. 2015 Nov 21;386(10008):2059-2068. Krieger EM, Drager LF, Giorgi DMA, Pereira AC, Barreto-Filho JAS, Nogueira AR, Mill JG, Lotufo PA, Amodeo C, Batista MC, Bodanese LC, Carvalho ACC, Castro I, Chaves H, Costa EAS, Feitosa GS, Franco RJS, Fuchs FD, Guimarães AC, Jardim PC, Machado CA, Magalhães ME, Mion D Jr, Nascimento RM, Nobre F, Nóbrega AC, Ribeiro ALP, Rodrigues-Sobrinho CR, Sanjuliani AF, Teixeira MDCB, Krieger JE; ReHOT Investigators. Spironolactone Versus Clonidine as a Fourth-Drug Therapy for Resistant Hypertension: The ReHOT Randomized Study (Resistant Hypertension Optimal Treatment).Hypertension. 2018 Apr;71(4):681-690.

Languages taught:

Portuguese

Class type:

Não-Presencial

Additional class type information:

- A porcentagem da disciplina que ocorrerá no sistema não presencial (1- 100%). Será 100%.
- Detalhamento das atividades que serão presenciais e das que serão desenvolvidas via remota, com discriminação do tempo de atividade contínua online. As atividades serão desenvolvidas totalmente no modo online composta de uma aula teórica de 1 h e 30, e seminário com apresentação de artigos com 2 hs de duração.
- Especificação se as aulas, quando online, serão síncronas ou assíncronas. As aulas e seminários serão realizadas na forma síncrona.
- Descrição do tipo de material e/ou conteúdo que será disponibilizado para o aluno e a A plataforma que será utilizada. Será enviado aos alunos via e mail pasta contendo os artigos de referência para serem apresentados em seminário online, sob supervisão de um docente. Haverá transmissão de vídeos pré-gravados durante o período de transmissão online das aulas.
- Definição sobre a presença na Universidade e, quando necessária, discriminar quem deverá estar presente (professora/professor; aluna/aluno; ambos). O docente

responsável pela aula e pela discussão e supervisão dos seminários estará presente na sala de aula durante o período destinado a transmissão.

- Descrição dos tipos e da frequência de interação entre aluna/aluno e professora/professor (somente durante as aulas; fora do período das aulas; horários; por chat/e-mail/fóruns ou outro). A interação entre aluna/aluno e professora/professor será somente durante as aulas e seminários.
- A forma de controle da frequência nas aulas. A forma de controle da frequência nas aulas será controlada por secretária da Unidade que irá verificar a entrada dos alunos e permanência durante todo o período.
- Informação sobre a obrigatoriedade ou não de disponibilidade de câmera e áudio (microfone) por parte dos alunos. Obrigatoriedade de disponibilidade de câmera e áudio (microfone) por parte dos alunos/alunas durante o seminário e sessão de perguntas. A forma de avaliação da aprendizagem (presencial/remota).
- A avaliação da aprendizagem será por meio envio por e mail de relatório da disciplina.