Contents

Section 1 - Importance of Blood Pressure Measurement

Chapter 1	Blood Pressure Measurement - Basic Principles and	
•	Practical Application	
	B. Egner	
1.1	Why is Blood Pressure Measurement so Important?	
1.1.1	Definition	2
1.1.2	Regulatory Mechanisms	7
1.1.2.1	Immediate Regulation (in less than 1 minute)	7
1.1.2.2	Medium-Term Regulation	8
1.1.2.3	Delayed Regulation	10
1.2	Which Blood Pressure is Normal for Dogs or Cats?	1
1.3	Which Blood Pressure Variations can Occur?	12
1.3.1	Physiological Variation	13
1.3.2	Circadian Variation	13
1.3.3	Stress-Related Variation	13
1.3.3.1	White-Coat Effect	13
1.3.3.2	Distracting Noises / Stressful Environment	14
Chapter 2	Indications for Blood Pressure Measurement	
-	B. Egner, W. Erhardt, J. Henke, A. Carr	15
2.1	How Important is Screening?	10
2.2	How can Blood Pressure Measurement Help to	
	Establish a Diagnosis?	17
2.2.1	Early Diagnosis	17
2.2.2	Establishing a Tentative Diagnosis	18
2.2.3	Investigation of Non-Specific Symtoms	19
2.3	How Important is Blood Pressure Measurement in	
	Emergency Medicine?	19
2.4	How does Blood Pressure Measurement Augment	
	Intensive Care Monitoring?	20
2.5	How does Blood Pressure Measurement Help Monitor	
	the Course of Therapy and Disease?	2
2.6	Why is Blood Pressure Measurement Important during Anesthesia?	23
2.6.1	Preanesthetic Examination	28
2.6.2	Blood Pressure Measurement in Anesthesia Monitoring	29
2.6.3	Emergency Procedures	3



Chapter 3	Techniques	
_	W. Erhardt, J. Henke, A. Carr	34
3.1	Techniques of Arterial Blood Pressure Measurement	34
3.1.1	Direct Blood Pressure Measurement (Invasive Techniques)	34
3.1.2	Indirect Blood Pressure Measurement (Noninvasive Techniques)	38
3.1.2.1	Doppler Systems for Blood Pressure Measurement	39
3.1.2.2	Oscillometric Systems for Blood Pressure Measurement	42
3.1.2.3	Plethysmography	47
3.1.2.4	Methods of Blood Pressure Estimation	50
3.2	Measurement of Central Venous Pressure	51
3.3	Successful Blood Pressure Measurement in Small Animal Practice	53
3.3.1	Requirements for Blood Pressure Measurement	53
3.3.2	Practical Tips on Taking Blood Pressure Measurements	53
3.3.2.1	Cuff Application Sites	54
3.3.2.2	Blood Pressure Measurement in Dogs	54
3.3.2.3	Blood Pressure Measurement in Cats	55
3.3.2.4	Other Animal Species	57
3.4	Interpretation of Results	58
Section 2	- Pathologic Changes in Blood Pressure	
Chapter 1	Causes and Effects of Hypertension	
-	W. Kraft, B. Egner	61
1.1	What is Hypertension?	61
1.2	How does Hypertension Develop?	64
1.3	What Causes Hypertension in Dogs and Cats?	65
1.3.1	Primary Hypertension	65
1.3.2	Secondary Hypertension	66
1.3.3	Diseases Associated with Hypertension	66
1.3.3.1	Heart Disease	67
1.3.3.2	Renal Disease	69
1.3.3.3	Endocrine Diseases	71
1.4	How does Hypertension Affect the Body?	85
1.5	Symptoms of Hypertension	85
Chapter 2	Causes and Consequences of Hypotension	
Chapter 2	W. Erhardt, J. Henke, A. Carr	87
2.1	What is Hypotension?	87
2.2	How does Hypotension Develop?	87
2.3	Hypotension - The Primary Symptom of Shock	88
2.3.1	Time Course of Shock	89
2.3.1.1	Early Shock (Compensatory Stage)	90
2.3.1.2	Protracted Shock (Early Decompensatory Stage)	91
2.3.1.3	Irreversible Shock (Decompensatory or Terminal Shock)	92
2.3.2	Forms of Shock	93
2.3.2.1	Hypovolemic Shock	94
	-7 P	, -

		Content	XIII
2.3.2.2	Septic Shock	95	
2.3.2.3	Cardiogenic Shock	97	
2.3.2.4	Anaphylactoid Shock	98	
2.4	Diabetic Coma	99	
2.5	Heart Failure	99	
2.6	Hypoadrenocorticism	100	
2.7	Hypothyroidism (Myxedema Coma)	101	
2.8	Symptoms of Hypotension	101	
Section 3	- Endorgan Damage		
Chapter 1	The Heart as a Target Organ		
	R. L. Stepien	103	
1.1	Introduction	103	
1.2	Normal and Abnormal Cardiac Responses to Pressure Load	103	
1.2.1	Myocardial Response to Loading	104	
1.2.2	Stages of Hypertrophy	104	
1.2.3	Mechanism of Hypertrophy	104	
1.3	Concentric Left Ventricular Hypertrophy Secondary to		
	Systemic Hypertension	105	
1.3.1	Importance of Left Ventricular Hypertrophy in Veterinary Patients	106	
1.3.2	Cardiac Response to Systemic Hypertension in Cats and Dogs	106	
1.3.2.1	Clinical Cardiac Examination Findings	106	
1.3.2.2	Differential Diagnosis of Left Ventricular Hypertrophy in Cats	110	
1.3.2.3	Differential Diagnosis of Left Ventricular Hypertrophy in Dogs	110	
1.4	Response of Cardiac Changes to Therapy	110	
Chapter 2	The Eye as a Target Organ		
	F. Maggio, M. G. Davidson	112	
2.1	Introduction	112	
2.2	Blood Flow Regulation and the Blood-Retinal Barrier	112	
2.3	Fundic Changes in Systemic Hypertension	113	
2.3.1	Hypertensive Retinopathy	113	
2.3.2	Hypertensive Choroidopathy	114	
2.3.3	Hypertensive Optic Neuropathy	114	
2.4	Diagnosis	114	
2.5	Differential Diagnosis	119	
2.6	Treatment	119	
2.7	Prognosis	120	
Chapter 3	The Kidney as a Target Organ		
2.1	S. Brown	121	
3.1	How does Hydrostatic Pressure Affect Kidney Function?	122	
3.2 3.3	How is Glomerular Capillary Hydrostatic Pressure Controlled? What Happens to Renal Autoregulatory Efficiency in	122	
J.J	Kidney Disease?	123	

3.4	What Leads to the Development and Maintenance	
	of Systemic Hypertension in Kidney Disease?	124
3.5	The Concept of Using Antihypertensives as	
	"Renoprotective" Agents	125
Chapter 4	The Brain as a Target Organ	
Chapter 4	R. S. Bagley	129
4.1	Introduction and Background	129
4.1.1	Intracranial Pressure (ICP) Regulation	130
4.1.2	Cushing's Reflex	130
4.2	Pathophysiology of Intracranial Hypertension	130
4.2.1	Cerebral Blood Flow Autoregulation	131
4.2.1.1	Robin Hood and Steal Phenomenon	131
4.2.1.2	The Role of Systemic Blood Pressure	132
4.2.2	Why Edema Develops	133
4.2.3	Why CNS Hermorrhage Develops	134
4.3	Clinical Consequences of Systemic Hypertension	135
4.4	Diagnosis	136
4.4.1	Diagnosis of Bleeding	136
4.4.2	The Diagnostic Advantage of CT and MR	137
4.5	Treatment	137
4.5.1	Diuretics	138
4.5.2	Other Treatments of Increased Intracranial Pressure	139
Section 4	- Therapy	
Chapter 1	Hypertension	
Chapter 1	F. R. Ungemach	143
1.1	When is Antihypertensive Treatment Indicated?	143
1.2	General Non-Pharmacologic Measures	144
1.3	Pharmacologic Measures	144
1.4	Treatment Plan	144
1.5	Treatment of Hypertensive Crisis	146
1.6	Antihypertensive Measures in Pheochromocytoma	146
1.7	Drug Profiles	148
1.7.1	ACE Inhibitors	148
1.7.2	Angiotensin-Il Receptor Antagonists	149
1.7.3	Calcium Channel Blockers	149
1.7.3.1	Dihydropyridines	150
1.7.3.2	Benzothiazepines	151
1.7.4	β-Blockers	151
1.7.5	α-Blockers	153
1.7.6	Non-specific Vasodilators	154
1.7.7	Diuretics	155

_		Content	X۱
Chapter 2	Hypotension		
Chapter 2	F. R. Ungemach	159	
2.1	When is Treatment of Hypotension Indicated?	159	
2.1.1	Primary Arterial Hypotension	159	
2.1.2	Secondary Arterial Hypotension	159	
2.2	Drug Treatment of Hypotension	160	
2.2.1	Increasing blood volume	160	
2.2.2	Sympathomimetics	160	
2.2.2.1	Intravenous Sympathomimetics	160	
2.3	Treatment of Shock	165	
2.3.1	Treatment Strategies	165	
Chapter 3	Drugs with Hemodynamic Side Effects		
1	F. R. Ungemach	167	
Section 5	- Economics		
1	Increase of the Clinics Image and Profitability		
	A. Carr	169	
1.1	Market Situation	169	
1.2	Why Will Blood Pressure Measurement be a Successful		
	Addition to your Practice?	169	
1.3	Measuring Blood Pressure Routinely is a Smart		
	Marketing Move!	169	
1.4	Measuring Blood Pressure can be a Valuable Aid in		
	Improving the Work Environment in your Practice!	170	
1.5	Amortizing the Investment in a Blood Pressure		
	Monitoring Device	171	
Annendiv	: Dietary Management		
Appendix	W. Off	175	
Literature		183	
Index		195	
Credits		199	