



PATHOPHYSIOLOGY OF CHF

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DIPLOMATE ACVIM (CARDIOLOGY)

1

OBJECTIVES

- TO UNDERSTAND THE PATHOPHYSIOLOGY OF CONGESTIVE HEART FAILURE.
- TO UNDERSTAND ETIOLOGIES OF CONGESTIVE HEART FAILURE.
- TO UNDERSTAND THE USE OF CARDIAC MEDICATIONS FOR CONGESTIVE HEART FAILURE.

2

HEART FAILURE

- CARDIAC DYSFUNCTION
 - REDUCED CARDIAC OUTPUT
- COMPENSATORY MECHANISMS
 - HYPERTROPHY
 - CONCENTRIC OR ECCENTRIC
 - SYMPATHETIC NERVOUS SYSTEM ACTIVATION
 - RENIN-ANGIOTENSIN-ALDOSTERONE ACTIVATION

3

CHF CLASSIFICATION

LEFT-SIDED CHF

- PULMONARY EDEMA
 - CANINE DISTRIBUTION
 - PERIHILAR
 - CAUDODORSAL
 - CRANIOVENTRAL
 - FELINE DISTRIBUTION
 - ANYTHING!

RIGHT-SIDED CHF

- ASCITES
 - MODIFIED TRANSUDATE
 - HIGH PROTEIN/LOW CELL
- PLEURAL EFFUSION
 - MODIFIED TRANSUDATE
 - CHYLOTHORAX

4

ETOLOGIES OF CHF

- CONGENITAL
 - VALVULAR
 - SEPTAL / SHUNT
- ARRHYTHMIAS
 - TACHYCARDIA-INDUCED CARDIOMYOPATHY
- ACQUIRED
 - MYOCARDIAL
 - VALVULAR
 - PERICARDIAL

5

CONGENITAL DEFECTS

- VENTRICULAR SEPTAL DEFECT
- TRICUSPID VALVE DYSPLASIA
- ATRIAL SEPTAL DEFECT
- TETROLOGY OF FALLOT
- TRANSPOSITION OF THE GREAT VESSELS
- PATENT DUCTUS ARTERIOSUS
- PULMONIC STENOSIS

6

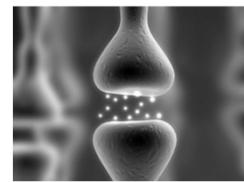
ACQUIRED CARDIAC DISEASE

- VALVULAR DEGENERATION
- INFECTIVE ENDOCARDITIS
- CARDIOMYOPATHY (PUMP FAILURE)
- PERICARDIAL DISEASE
- ARRHYTHMIAS

7

VOLUME ALTERATIONS

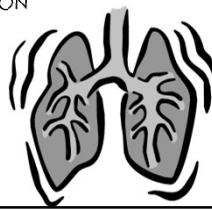
- INCREASED PRELOAD
 - RAAS STIMULATION
 - SODIUM RETENTION / WATER RETENTION
- INCREASED AFTERLOAD
 - RAAS STIMULATION
 - VASOCONSTRICITION
- MYOCARDIAL FAILURE



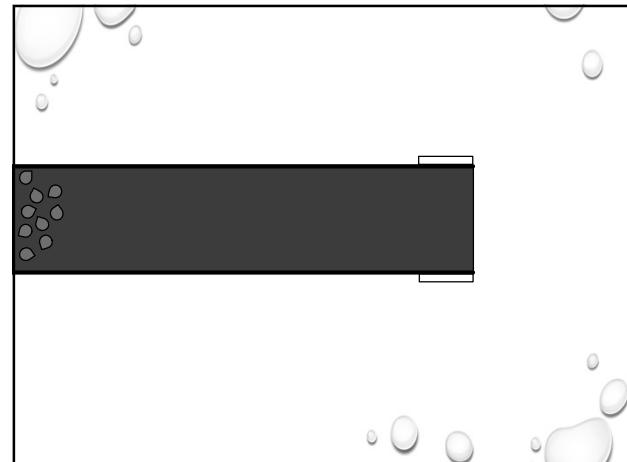
8

CARDIOVASCULAR RESPONSES

- ELEVATED SYSTEMIC VENOUS PRESSURES
 - JUGULAR DISTENSION / PULSATION
 - CAVITARY EFFUSION
- PULMONARY EDEMA

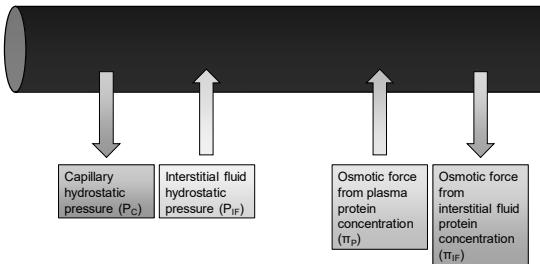


9

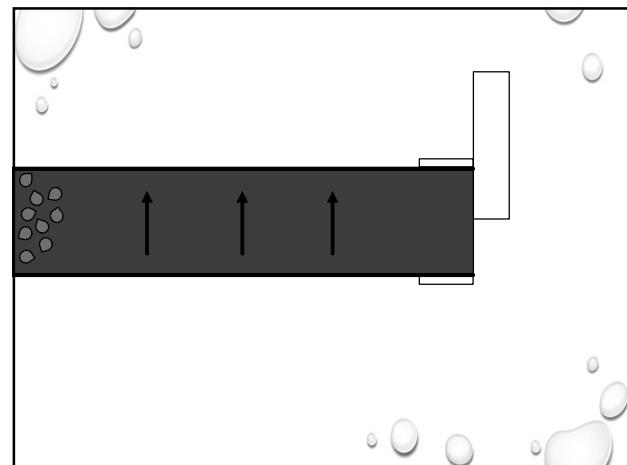


10

Starling Forces

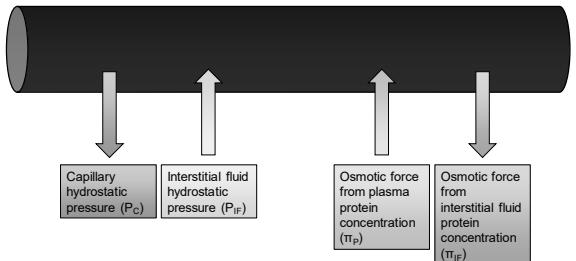


11



12

Starling Forces



13

TREATMENT OPTIONS

- PRELOAD REDUCTION
 - DIURETICS, ACE INHIBITORS
- AFTERLOAD REDUCTION
 - ACE INHIBITORS, VASODILATORS
- INOTROPIC SUPPORT
 - POSITIVE INOTROPES

14

PRELOAD REDUCTION

- DIUREtic THERAPY
 - EXCRETE WATER DUE TO MOVEMENT OF ELECTROLYTES (Na^{2+})
 - VASCULAR VOLUME DEPLETION
- PRIMARILY WORK IN THE TUBULAR LUMEN
 - ACTIVE TRANSPORT OR INHIBITION

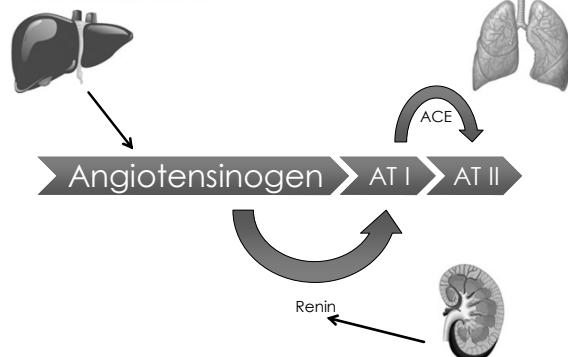
15

RENIN STIMULATION

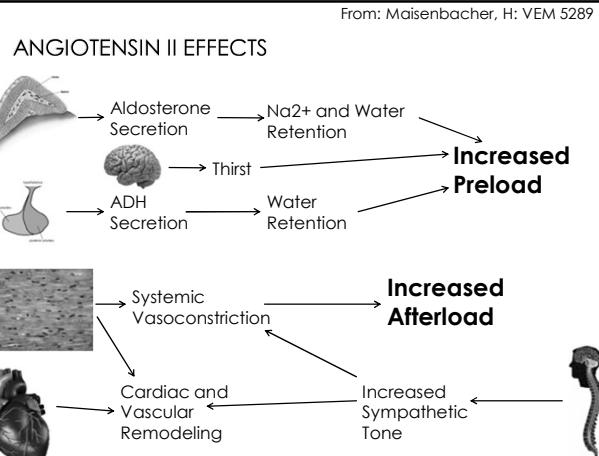
- DECREASED RENAL PERfusion
- DECREASED Na^{2+} DELIVERY
- SYMPATHETIC STIMULATION

16

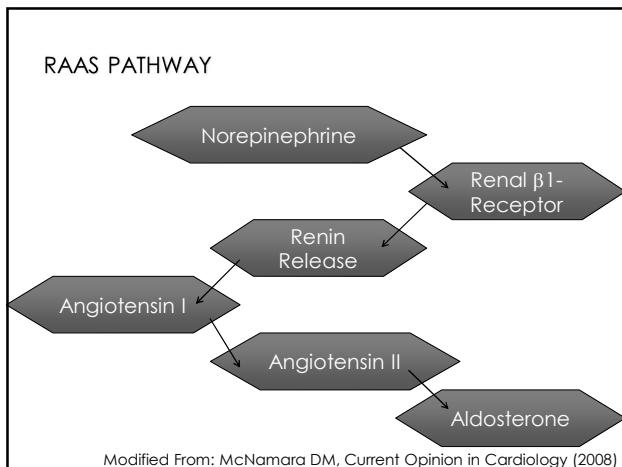
RAAS PATHWAY



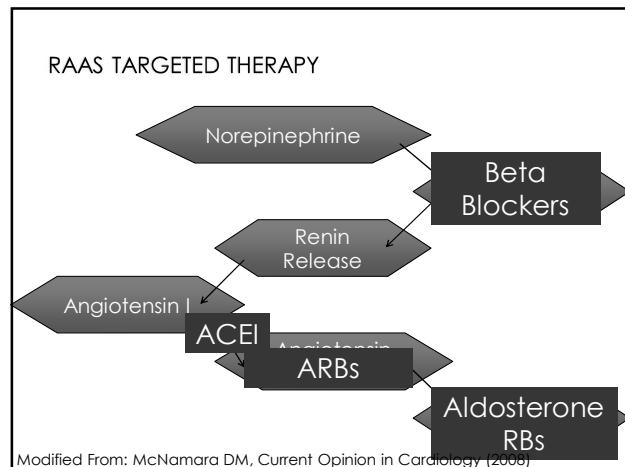
17



18



19



20



21