FISIOTERAPI PADA PENYAKIT JANTUNG PULMONAL

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Bahasan

- Definisi Penyakit jantung pulmonal
- Epidemiologi Penyakit jantung pulmonal
- Faktor Resiko Penyakit jantung pulmonal
- Patologi Penyakit Penyakit jantung pulmonal
- Deteksi dini dan pemeriksaan pada Penyakit jantung pulmonal
- Proses fisioterapi pada Penyakit jantung pulmonal
- Kaidah interaksi/hubungan dalam tinjauan Islam

Definisi

- Penyakit jantung pulmonal adalah keadaan perubahan struktur dan fungsi ventrikel jantung kanan akibat penyakit primer pada **sistem pernapasan**. Penyebab utama Penyakit jantung pulmonal adalah hipertensi pulmonal.[3]
- Penyakit ventrikel kanan yang disebabkan oleh abnormalitas primer pada bagian kiri jantung tidak dikategorikan ke dalam Penyakit jantung pulmonal. [1,2]

Epidemiologi

- Amerika Serikat 6-7%
- Penyakit jantung paru 5-10% all heart diseease
- 20-30% of all admissions for heart failure

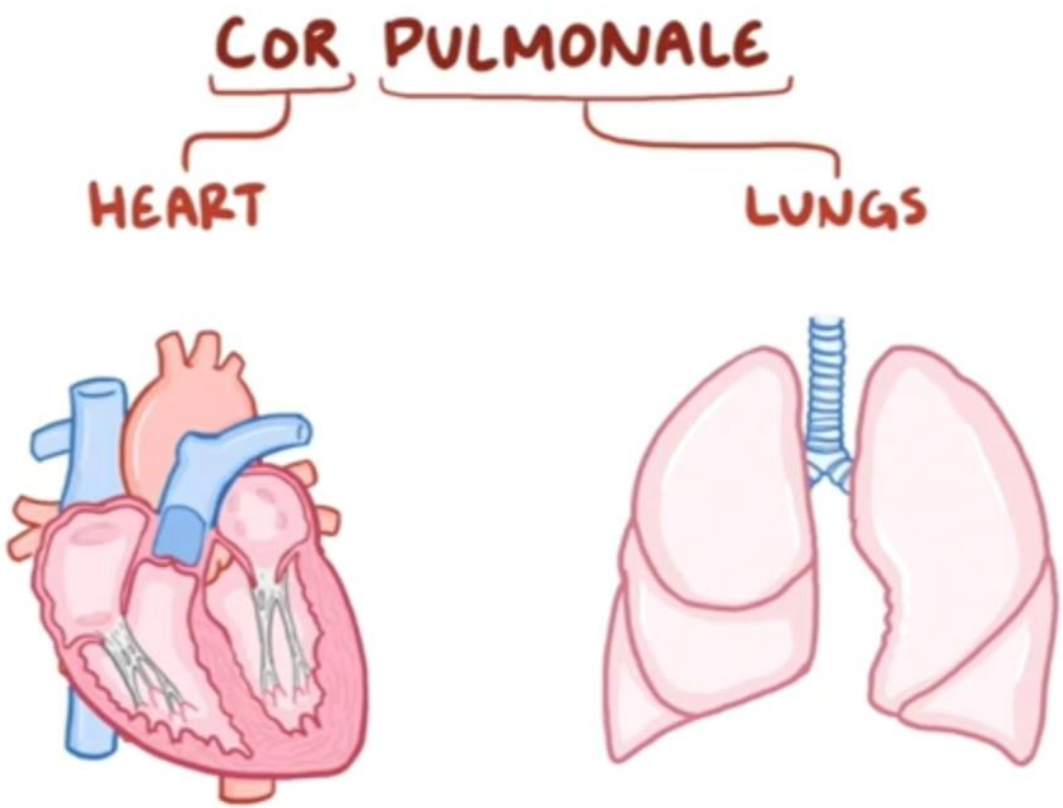
Etiologi

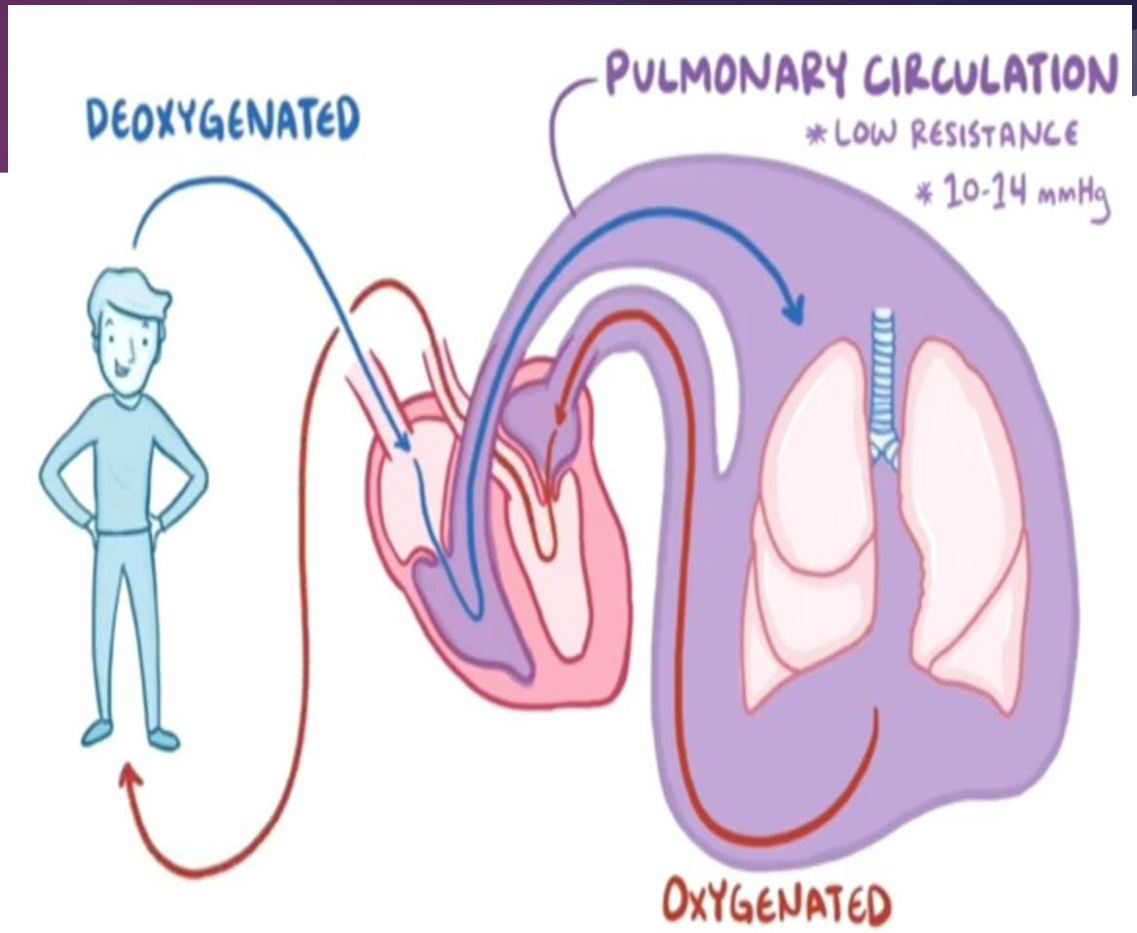
- Penyakit jantung pulmonal akut:
  emboli paru.
- Penyakit jantung pulmonal Kronik :
  penyakit paru obstruktif (PPOK),
  penyakit paru restriktif,
  pembuluh darah paru, dan
  penyakit insufisiensi paru sentral (sindrom *sleep apnea)* [4]

Penyakit jantung pulmonal akut atau kronis menyebabkan adanya

PULMONARY HIPERTENSI (PH)

Proses Pathology



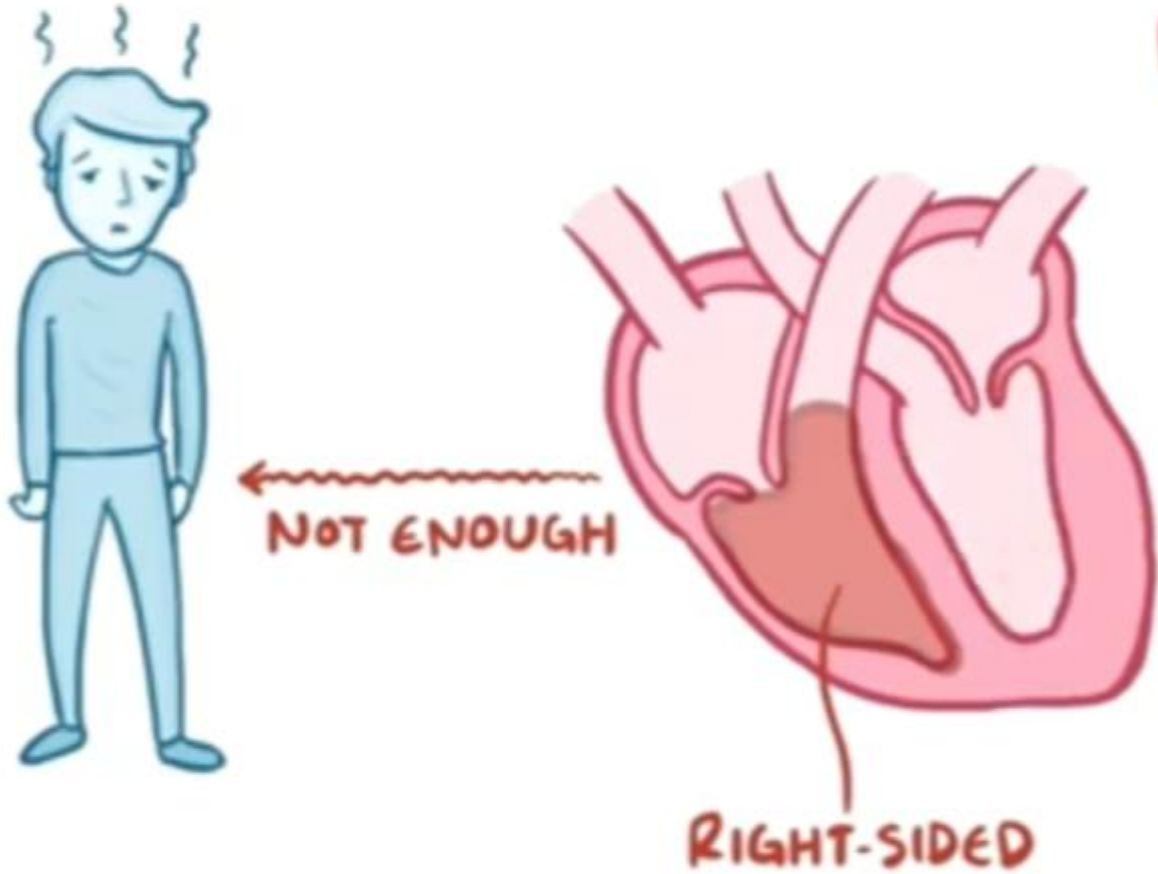


LUNG DISORDER

RIGHT-SIDED
HEART DYSFUNCTION

RIGHT-SIDED
HEART FAILURE

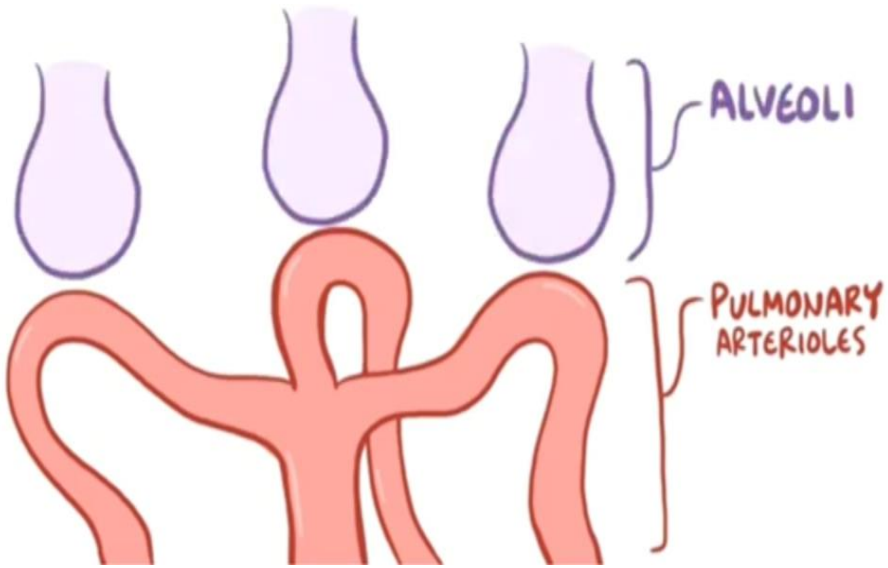
* SYSTOLIC ~ CAN'T PUMP ENOUGH
* DIASTOLIC ~ CAN'T FILL ENOUGH



LUNG DISORDER ~ HARDER to OXYGENATE BLOOD

↳ HYPOXIA ~ Low OXYGEN

* HYPOXIC VASOCONSTRICTION *



LUNG DISORDER ~ HARDER to OXYGENATE BLOOD

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HARD for RIGHT VENTRIC

INCREASED RESISTANCE

PULMONARY HYPERTENSION

* PRESSURE >25mmHg

ACUTE LUNG DISORDERS

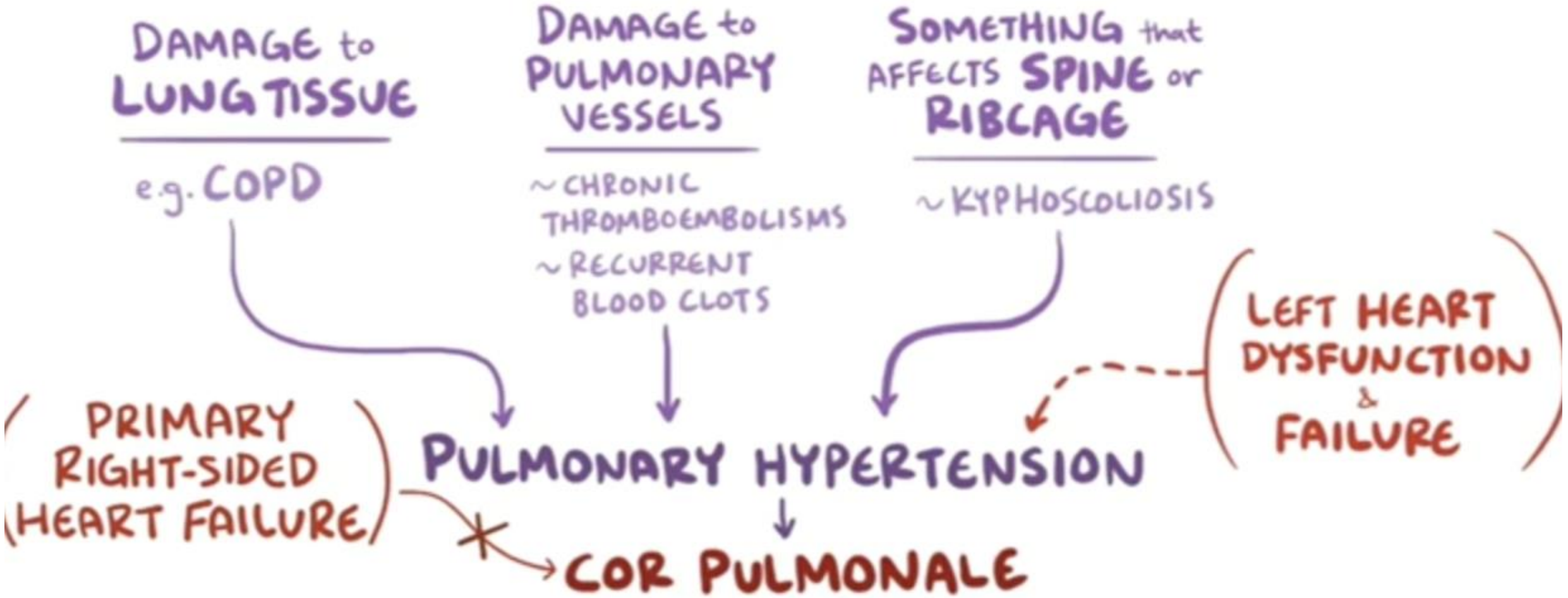
e.g. PULMONARY EMBOLISM
- BLOOD CLOT BLOCKS PULMONARY ARTERY

* RAPID RISE in **PRESSURE**

CHRONIC LUNG DISORDERS

* **PROLONGED** HIGH PRESSURE

CONCENTRIC HYPERTROPHY
* CONTRACT W/MORE FORCE
  - → LESS SPACE → **DIASTOLIC** FAILUR


DAMAGE to LUNG TISSUE
e.g. COPD
DAMAGE to PULMONARY VESSELS
~ CHRONIC THROMBOEMBOLISMS
~ RECURRENT BLOOD CLOTS
SOMETHING that AFFECTS SPINE or RIBCAGE
~ KYPHOSCOLIOSIS
LEFT HEART DYSFUNCTION & FAILURE
PRIMARY RIGHT-SIDED HEART FAILURE
PULMONARY HYPERTENSION
COR PULMONALE

LUNG CONDITION

↓

PULMONARY HYPERTENSION

↓

COR PULMONALE

RIGHT-SIDED HYPERTROPHY & FAILURE

SYMPTOMS

* FLUID CONGESTION
  - JUGULAR VENOUS DISTENSION
  - HEPATOMEGALY
  - EDEMA

DIAGNOSIS

* ECHOCARDIOGRAM
* RIGHT HEART CATHETERIZATION
* SPIROMETRY

TREATMENT

* SUPPLEMENTAL OXYGEN

Pulmonary Hypertensi

- Mean PAP >35-40 mmHg
- Normal is no more than 20 mmHg

Tanda dan Gejala

- cough,
- exertional dyspnea,
- wheezing respirations,
- easy fatigability and weakness
- Edema
- distended neck veins
- tricuspid regurgitation
- Ascites
- Cyanosis

Proses Fisioterapi
Assesment & dokumentasi Fisioterapi

- Data subjektif
- Data objektif
- Analisis, Assessment
- Planning
- Intervensi
- Evaluasi
- Reassessment

Proses Fisioterapis

Pemeriksaan Subjektif

RPS & RPD : Nyeri dada, sesak, aktifitas, peningkatan berat badan

berlebih, Paroxysmal Nocturnal Dyspnea, obat obatan, penyakit lain (onset, profokasi,kualitas, radiasi, skala, time)

Pemeriksaaan Objektif

Airway, breathing, cirkulasi, disability,

gejala & penurunan Curah jantung

kesadaran, kelelahan, HR meningkat, nadi lemah, hipotensi,

pucat, keringat dingin, pusing, urine output, sianosis

Gejala dan Tanda

- Gejala & tanda bendungan jantung,paru & Vena

  terdapat BJ III & IV, Ortopnea, tachhipnea, ronchi paru

  batuk, edema perifer, distensi vena

- Gejala & tanda edema Paru

  batuk produktif dg bercak darah merah

Alat alat yang mensupport pasien ?

Oksigen, cateter urine, line inpus, NGT

- Data clinis , data penunjang
- Psikologis pasien
- Depresi

- Level aktifitas

  pasien di bed, immobilisasi, kamar mandi
- Level muskuloskeletalnya ?

Data Penunjang

1. Foto thorak

   kardiomegali ? Efusi ?

2. Elektrokardiogram

   Infark, aritmia, hpertropy

3. Laboratorium

- Anemia,
- Enzim jantung CK MB
- Fungs Hepar
- Fungsi Renal
- Elektrolit

4. Echocardiography

- Ketebalan otot Jantung
- Fungsi Systolik & Diastolik
- Trombus
- Fungsi Katup
- Efusi perikard

5. Kateterisasi

- Coronary artery ? Tekanan di ruang paru, trombus

6. Data obat obatan

- Diuretik
- Ace inhibitor
- Inotropik

Penyakit jantung paru

Problem Fisioterapi

- Decreased ventilation
- Impaired airway clearance
- Impaired aerobic capacity (maksimum oksigen konsumsi)
- limit level of actifity daily

Decreased ventilation : Solving

Breathing Exercise

Adalah susunan gerakan pernapasan yang ***sistematis*** untuk memperbaiki *ventilasi*, meningkatkan *kapasitas paru*

- Diaphragmatic breathing
  - Pursed lip breathing exercise
    - Segmental breathing

Diaphragmatic breathing exercise Objektives & potential outcome

- Therapeutic objectives alleviate dyspnea
  reduce the work of breathing
- Physiological objectives improve ventilation
  improve oxygenation
- Potential outcome eliminated accessory muscle
  decreased Respiratory rate
  increased tidal volume

Pursed lip breathing exercise

- Therapeutic objectives alleviate dyspnea
  increased tolerance
- Physiological objectives increased alveolar ventilation
  increased oxygenation
  reduce the work of breathing
- Potential outcome eliminated accessory muscle
  reduce Respiratory rate
  increased arterial oksigen tension
  decreased CO2 tension

Impaired airway clearance solving

- Chest Physiotherapy

Teknik membersihkan jalan napas secara **manual** dengan mengalirkan mukosa di dalam paru-paru dengan **cara** pengaturan posisi, perkusi, getaran, pernapasan dalam, serta teknik batuk efektif / huffing

Impaired aerobic capacity

- Karakteristik kerusakan otot jantung
- Elektrical abnormalitas
  - stroke (atrial fibrilation)
  - acute orstostatik/ SoB (VT
  - sudden death (Vf AV Blok)
  - PVC

Efek AF CO berkurang 10 -20 %

Efek nya pada preload decreased filling

Oksigen consumption decrease

Bed rest 3 – 4 hari CO

Fick equation

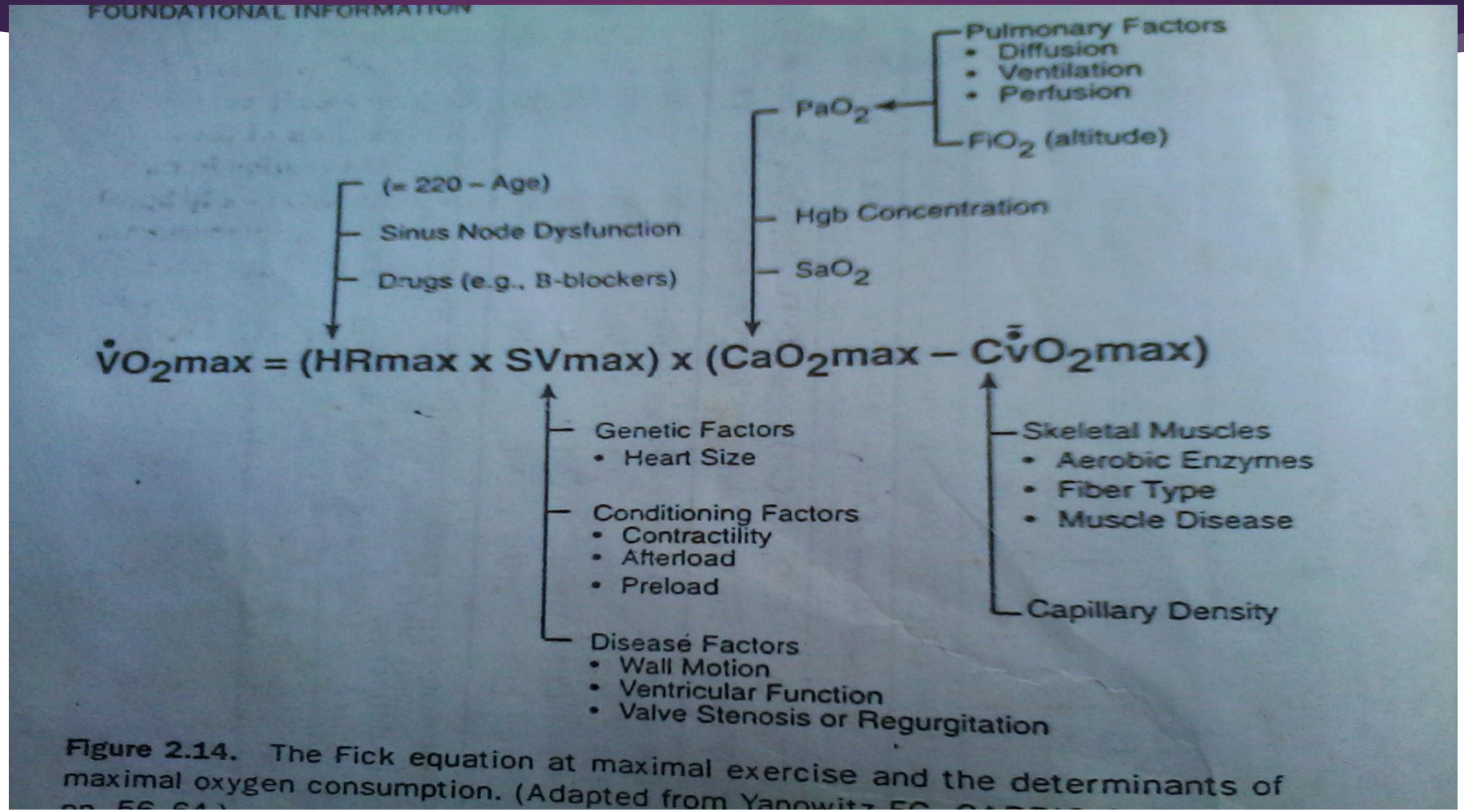


Figure 2.14. The Fick equation at maximal exercise and the determinants of maximal oxygen consumption. (Adapted from Yanowitz FG, CARDIO

Program exercise

Aerobik Training dan functional ability

- Selama di perawatan

  Mobilisasi Bed exercie, duduk berjalan

- Rawat jalan senam, jalan

Prognosis (Guide PT Practice)

- Medical : fungsi sistolik ? EF
- Tergantung kemampuan mengembangkan endurance
- Peningkatan dalam kemampuan fungsionalnya
- Toleransi latihan
- Kembali ke aktifitas sebelumnya ?

Monitor Latihan pada gagal jantung

- Heart rate
- Blood pressure
- ECG
- Symptom : angina, SOB, pallor, nausea, profuse sweating,
- Heart sound
- Lung sound
- Spo2

literasi

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