Echocardiography in the Emergency Room/ CCU/ ICU

THANGERVELU ANNAMALAY
ASSISTANT MEDICAL OFFICER U32

MEDICAL DEPARTMENT
HOSPITAL TAIPING, PERAK.
EMERGENCY ECHOCARDIOGRAPHY
EMERGENCY
ECHOCARDIOGRAPHY

- When echocardiography becomes important?

  Diagnostic tools in ER/CCU/ICU
  - Chest pain  
    - No ECG changes
    - ECG changes
  - Shortness of breath
  - Syncopal attack
  - Chest trauma
  - Haemodynamically unstable conditions (ICU)
  - Cardiac murmur
1. CHEST PAIN

- No ECG changes (majority of pts in ER with chest pain show no ECG changes).

- 2D- Echocardiography- detect RWAM. Therefore early diagnosis possible and treatment can be commenced.

- **Case 1&2** - Mr. X/ 56yrs old c/o Chest pain
  - ECG normal
  - 2D echo- RWAM- anterior- septal infero- lateral/ PW
CHEST PAIN

- ECG changes - ST elevation/ arrhythmia
  Δ Δ i. AMI
    ii. Pericarditis
    iii. HOCM
    iv. AS/ PS
    v. Aortic aneurysm/ dissection
    vi. AMI with LBBB
Mr. Y / 60yrs old c/o Chest pain
- ECG changes - ST elevation V1-V6
- BP 90/60, Pulse 130, SaO_2 - 70%

Δ Extensive AMI

- 2D echo - Shows - Ventrical Septal Rupture
2. SHORTNESS OF BREATH

- Chest X-ray - Cardiomegaly/ Globular heart/ but unable to distinguish murmur - require emergency echocardiography

- To rule out
  i. CCF/ DCM
  ii. Cardiac tamponade/ Pericardial effusion/
      Pleural effusion
  iii. Valvular heart disease - CRHD
      MS/ PS/ MR/ AR/ TR
  iv. CHD
  vi. Mural thrombus/ Pulmonary embolism
globular heart
CASE 4(a)

- Mrs. A/ 60yrs old- ER/ ICU
  c/o Shortness of breath
  BP 90/50, Pulse 130 beats/min
  X-ray shows globular heart
CASE 4(b)

- 3yrs old boy
  Shortness of breath/ Cyanotic
  X-ray/ Globular heart
  Haemodynamically unstable
  $\text{SaO}_2$ - 70%
CASE 5(a)

- Mr. R 53yrs old (ER/CCU)
  c/o- Shortness of breath
  Heart rate-130bpm
  Bp- 100/70mmhg
  SaO₂- 80%
  ECG- RBBB
Case 5(b)

- 63 yrs old female

C/O – Shortness of breath

B/P – 90/60

Heart rate – 120 beats/min

SaO₂ – 70%

ECG - RBBB
3. SYNCOPAL ATTACK

- To rule out
  - i. HOCM/ AS/ PS
  - ii. MVP
  - iii. Intra cardiac mass/ Vegetation/ Myxoma
  - iv. Pulmonary Embolism
  - v. Pulmonary Hypertension
  - vi. MS
CASE 6

- Mr. Q - 20 yrs old
- Presented in ER/ ICU –
- Shortness of Breath
- Auscultation – PSM
- BP 120/80 mmHg
- Pulse 80 b/m
- Temp. 39 °C
- ECG - RBBB
4. CHEST TRAUMA

- MVA/ fall/ Assault
  - Haemodynamically unstable
  - Restless/ Confused
  - Drop in oxygen saturation
  - Need emergency echocardiography
  - To rule out- cardiac tamponade/ pericardial effusion/ cardiac contusion
5. EMERGENCY ECHO in ICU
ECHOCARDIOGRAPHY a POPULAR TOOL
HAEMODYNAMICALLY UNSTABLE CONDITIONS/
CARDIAC MURMUR

■ Why?

i. Urgent diagnostic evaluation leads to
   - appropriate intervention
   - improve the course of disease
   - chance of survival

ii. Limit to diagnostic options due to the clinical condition and medical environment where transportation of patients involves major efforts and risk.
iii. High quality imaging
iv. Non-invasive
vi. Immediate on-line image analysis
vii. Extensive yield of data (structural, functional & haemodynamic information)
ICU Patient
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Emergency Echo in H. Taiping

- **Total number**
  - 5906 patients

- **Required Emergency Echo**
  - 1020 patients

- **Percentage**
  - 16%
CONCLUSION

- Echocardiography study is important and useful

Why?

  i. Immediate data → direct management strategies.
  ii. - ∆∆ critical valve disease, intracardiac shunt, cardiomyopathy and tamponade.

So, all of these can easily be diagnosed with echocardiography and establish a foundation for initial management.
WISHING YOU - IN YOUR BUSY LIFESTYLE SOME TIME FOR RELAXATION & REFLECTION ...... TO HAVE A HAPPY HEART.. KEEP YOUR HEART SMILING ALWAYS :-)
WITH THE BLISS OF REAL LOVE
Special Thanks to :-

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- Dr. Ramanathan s/o Manickam
  Consultant Physician.

- Dr. Umadevi A. Muthukumaru
  Respiratory Physician H. Taiping.
MANY BLESSINGS COME YOUR WAY TODAY:

MAY YOU ALWAYS HAVE LOVE TO SHARE
HEALTH TO SPARE
AND FRIENDS THAT CARE

THANK YOU.