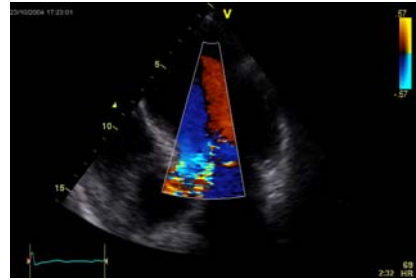


Bedømmelse av aortainsuffisiens med ekkokardiografi

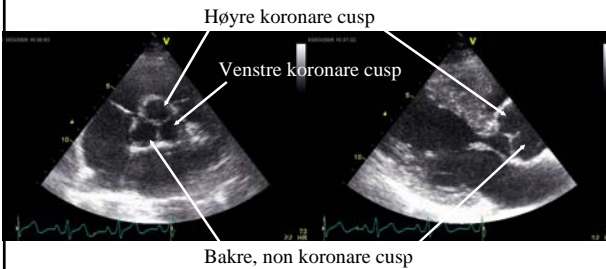
Asbjørn Støylen, dr. Med.
ISB,
DMF,
NTNU

www.ntnu.no/~stoylen/lectures

Aorta insuffisiens



Aorta anatomi



Akutt aortainsuffisiens

- Perforasjon / ruptur
 - Endokarditt, Ofte i forløpet av kronisk AI
- Sammenbrudd av kunstig klaff
 - Ruptur av seil, løsning

Akutt mitralinsuffisiens

- Ve. ventrikkel normal størrelse
 - Betydelig trykkøkning ventrikkelen ved stor lekkasje
 - Økt fyllingstrykk
 - Redusert koronar perfusjon
 - Hyperdynamisk ventrikkel
 - Økt O₂ behov
 - pga
 - stort lekkasjevolum

Kronisk Aortainsuffisiens

- Bicuspid aorta
- Andre misdannelser
- Dilatasjon av aortarot
- Giktfeber
- Andre reumatiske sykdommer
- Cuspforkalkninger
- Dysfunksjon av kunstig klaff

Ekkokardiografisk vurdering:

- **Diagnose:** pw, cw, CFM Doppler
 - påvisning
- **Årsak/ mekanisme:** 2D;
 - Klaffemorfologi, mekanisme.
- **Kvantitering:** pw, cw, CFM Doppler, 2D.
- **Hemodynamiske konsekvenser**
 - Trykk, minuttvolum
- **Konsekvenser for venstre ventrikkel**
 - Dilatasjon, kontraktilitet

ACC anbefalinger

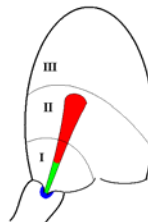
Recommendations for Echocardiography in Aortic Regurgitation

Indication	Class
1. Confirm presence and severity of acute AR.	I
2. Diagnosis of chronic AR in patients with equivocal physical findings.	I
3. Assessment of etiology of regurgitation (including valve morphology and aortic root size and morphology).	I
4. Assessment of LV hypertrophy, dimension (or volume), and systolic function.	I
5. Semiquantitative estimate of severity of AR.	I
6. Reevaluation of patients with mild, moderate, or severe regurgitation with new or changing symptoms.	I
7. Reevaluation of LV size and function in asymptomatic patients with severe regurgitation (recommended timing of reevaluation is given in Figure 2).	I
8. Reevaluation of asymptomatic patients with mild, moderate, or severe regurgitation and enlarged aortic root.	I
9. Yearly reevaluation of asymptomatic patients with mild to moderate regurgitation with stable physical signs and normal or near-normal LV chamber size.	III

Utbredelse av jet:

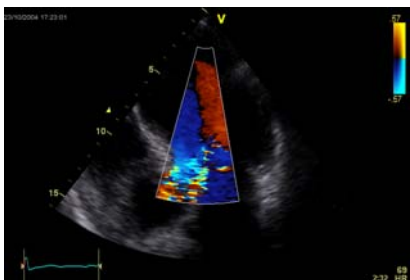


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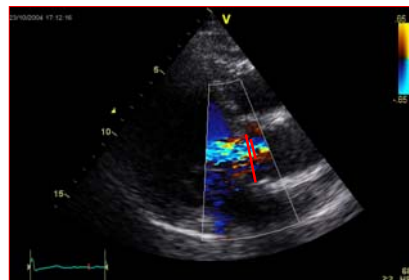


- **Gain avhengig**
- **Vinkelavhengig**
- **Frekvensavhengig**

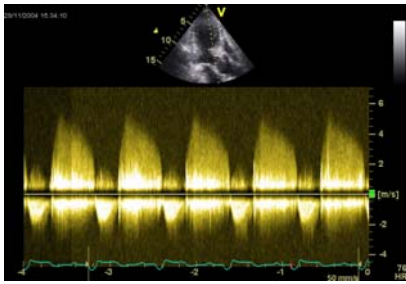
Sammenblanding med mitralflow



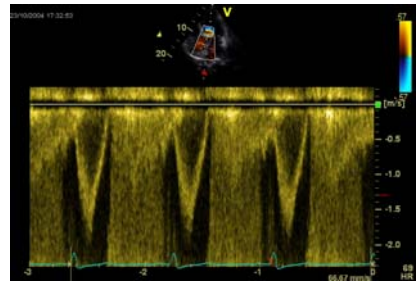
Vena contracta



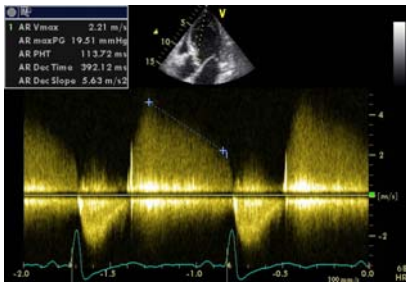
Signal intensitet



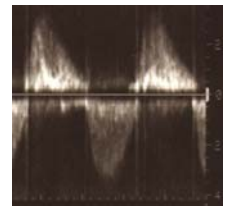
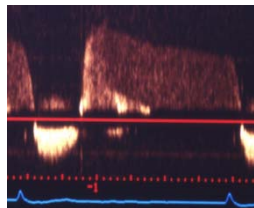
LVOT hastighet / Slagvolum



Trykthalveringstid

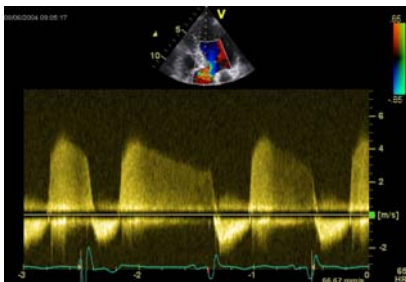


Aortainsuff. - trykthalveringstid

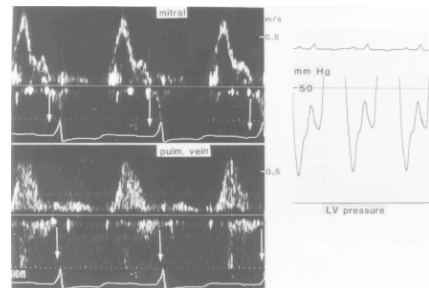


Ill. T. Skjærpe

Endiastolisk trykk



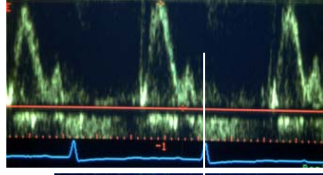
Endiastolisk trykk



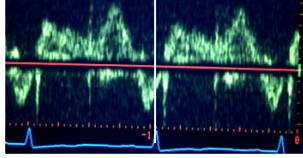
Ill. Ole Rossvoll

Forhøya endediastolisk trykk

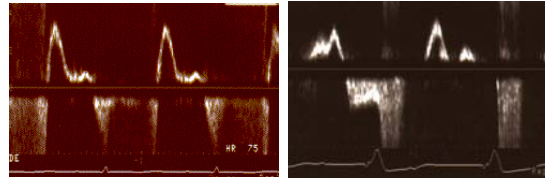
Mitralflow



Lungeveneflow

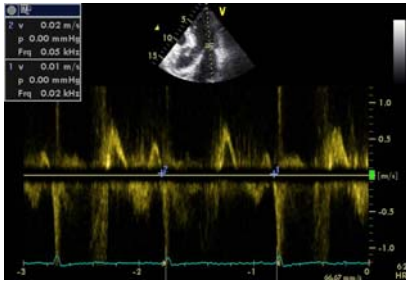


Endediastolisk trykk

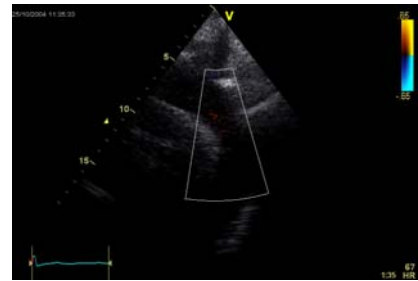


- Endediastolisk MI:
 - Fylning av ventrikkelen fra aorta
- Kan vær tegn på stor AI, men også ved samtidig:
 - Lang PQ-tid
 - Stiv ventrikkel

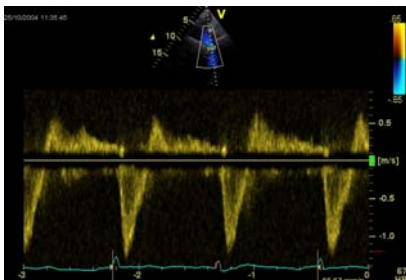
Midt diastolisk MI



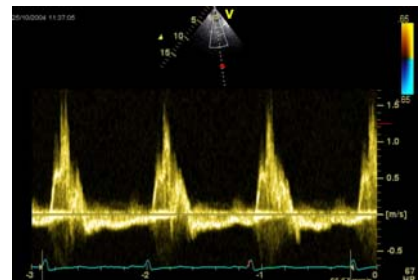
Revers arteriell flow i diastole



Revers arteriell flow i diastole



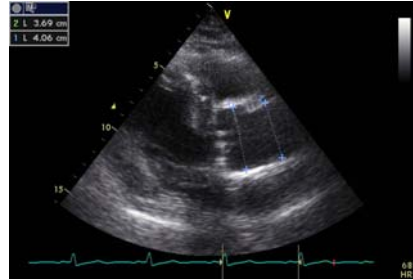
Revers arteriell flow i diastole



2 D ekkokardiografi:

- LVOT diameter
- Aortarot
- Aorta ascendens
- Venstre ventrikel
 - Kammerdiameter og –volum
 - EF
 - (Langaksekontraksjon)

Aortarot:



Dilatert, compliant aorta ascendens vil kunne maskere revers arteriell flow.

ACC/AHA operasjonsindikasjoner

Recommendations for Aortic Valve Replacement in Chronic Severe Aortic Regurgitation

Indication	Class
1. Patients with NYHA functional Class III or IV symptoms and preserved LV systolic function, defined as normal ejection fraction at rest (ejection fraction ≥ 0.50).	I
2. Patients with NYHA functional class II symptoms and preserved LV systolic function (ejection fraction ≥ 0.50 at rest) but with progressive LV dilatation or declining ejection fraction at rest on serial studies or declining effort tolerance on exercise testing.	I
3. Patients with Canadian Heart Association functional Class II or greater angina with or without CAD.	I
4. Asymptomatic or symptomatic patients with mild to moderate LV dysfunction at rest (ejection fraction 0.25 to 0.49).	I
5. Patients undergoing coronary artery bypass surgery or surgery on the aorta or other heart valves.	I

Bonow 1998

ACC/AHA fortsatt

6. Patients with NYHA functional Class II symptoms and preserved LV systolic function (ejection fraction ≥ 0.50 at rest) with stable LV size and systolic function on serial studies and stable exercise tolerance.	IIa
7. Asymptomatic patients with normal LV systolic function (ejection fraction > 0.50) but with severe LV dilatation (end-diastolic dimension > 75 mm or end-systolic dimension > 55 mm).*	IIa
8. Patients with severe LV dysfunction (ejection fraction < 0.25).	IIb
9. Asymptomatic patients with normal systolic function at rest (ejection fraction > 0.50) and progressive LV dilatation when the degree of dilatation is moderately severe (end-diastolic dimension 70 to 75 mm, end-systolic dimension 50 to 55 mm).	IIb
10. Asymptomatic patients with normal systolic function at rest (ejection fraction > 0.50) but with decline in ejection fraction during <ul style="list-style-type: none"> • Exercise radionuclide angiography • Stress echocardiography 	IIb
11. Asymptomatic patients with normal systolic function at rest (ejection fraction > 0.50) and LV dilatation when degree of dilatation is not severe (end-diastolic dimension < 70 mm, end-systolic dimension < 50 mm).	III

*Consider lower threshold values for patients of small stature of either gender. Clinical judgment is required.

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