

# Hvordan diagnostisere opphørt hjernesirkulasjon? Kliniske tester og billeddiagnostikk



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## Kliniske tester:

### Total bevisstløshet

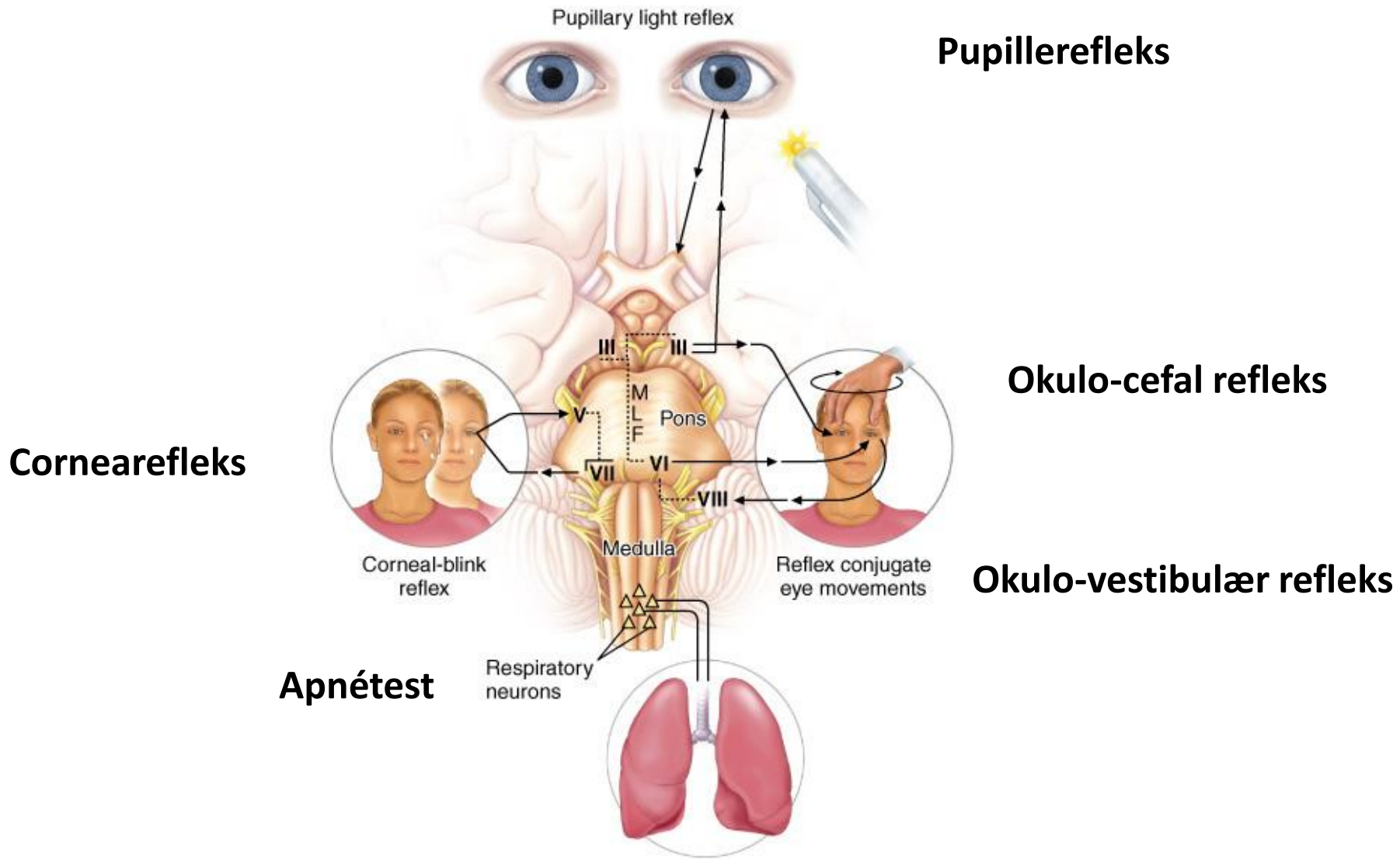
Det skal være fullstendig manglende reaksjon på lys, lyd, berøring og smertestimuli. Spinale reflekser kan av og til utløses selv om pasienten er hjernedød.

### Opphør av alle hjernestammereflekser

### Opphør av egenrespirasjon

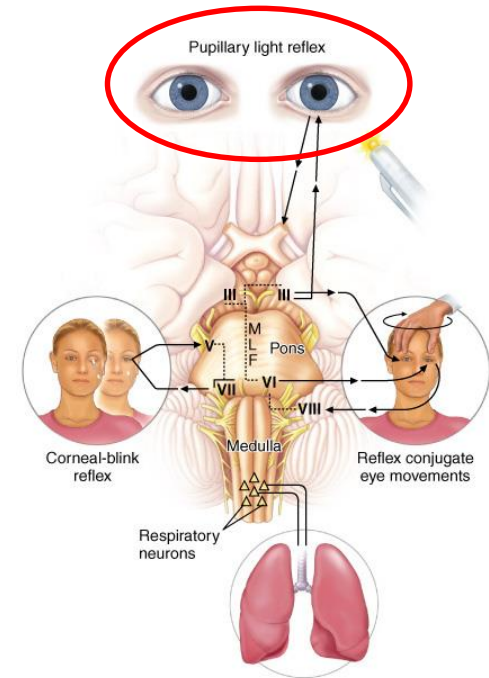
Kroppstemperatur  $> 35^{\circ}$  C

Ikke intoksikasjon, tung sedasjon eller muskelrelakserende



Source: Fauci AS, Kasper DL, Braunwald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine*, 17th Edition: <http://www.accessmedicine.com>  
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# Pupillerefleks



Source: Fauci AS, Kasper DL, Braunwald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine*, 17th Edition: <http://www.accessmedicine.com> Copyright © The McGraw-Hill Companies, Inc. All rights reserved.

**Pupillene utvidet – ikke lysreagerende**

# Oculo-cefal refleks (Dolls eyes fenomen)

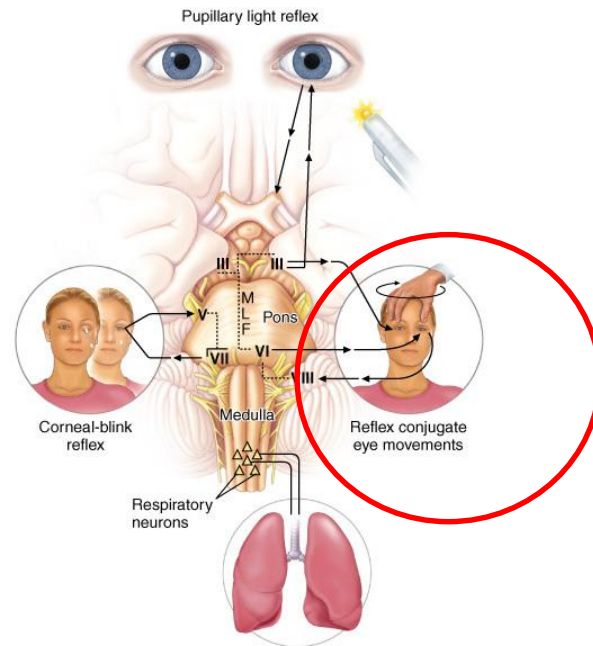
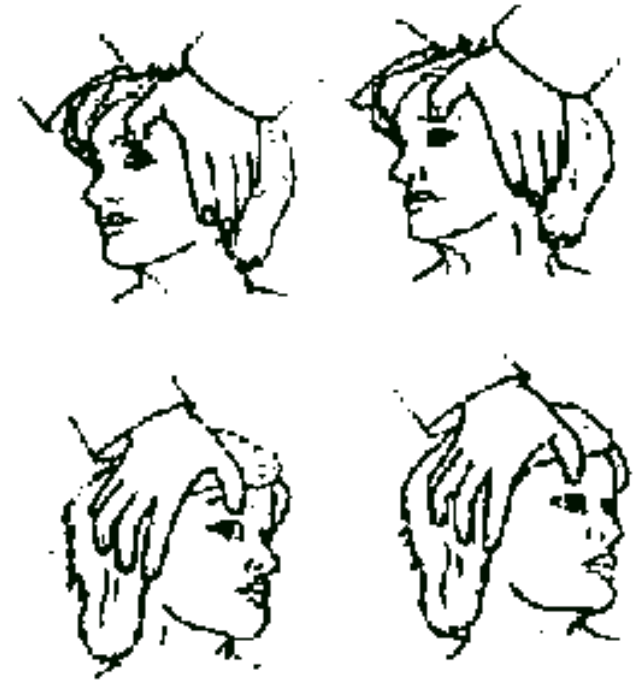
Normalt:

øyne beveger seg fra hodevridningen



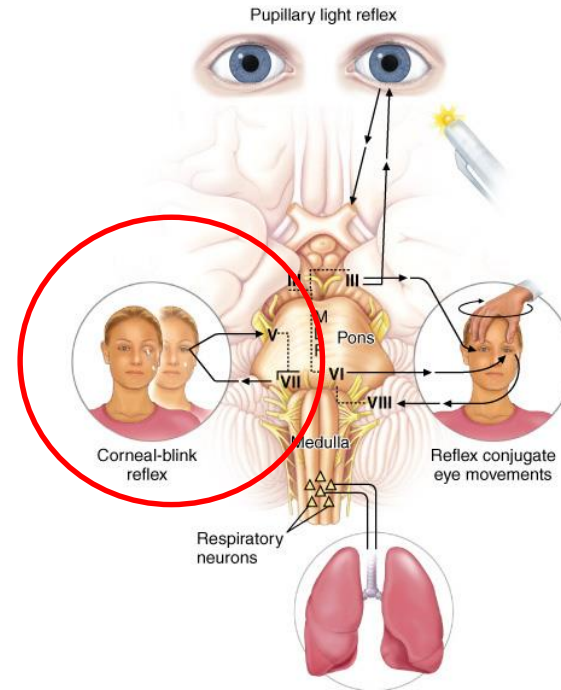
Patologisk:

Øyne er fiksert



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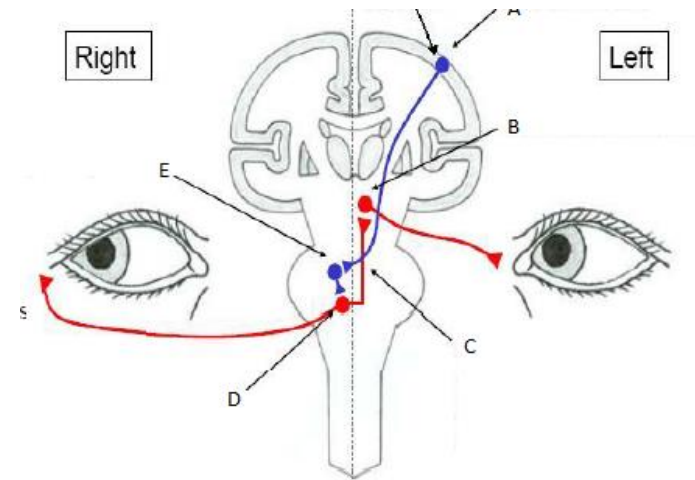
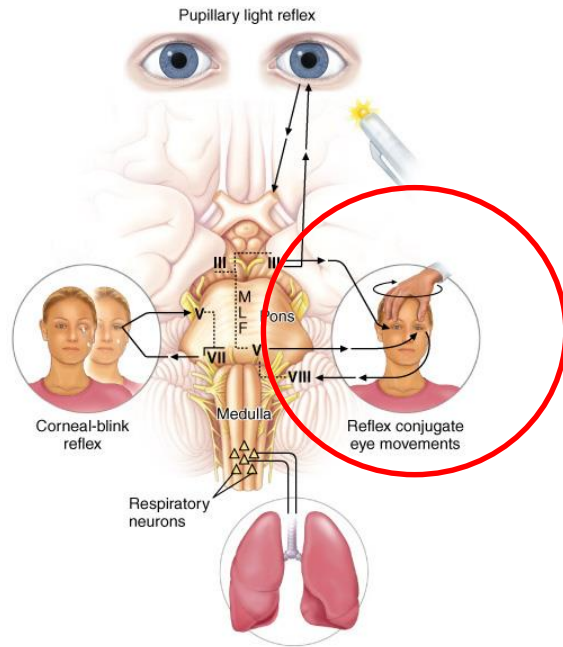
# Cornearefleks



Utslukket: ingen reaksjon

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# Okulo-vestibulær refleks (kalorisk prøve)

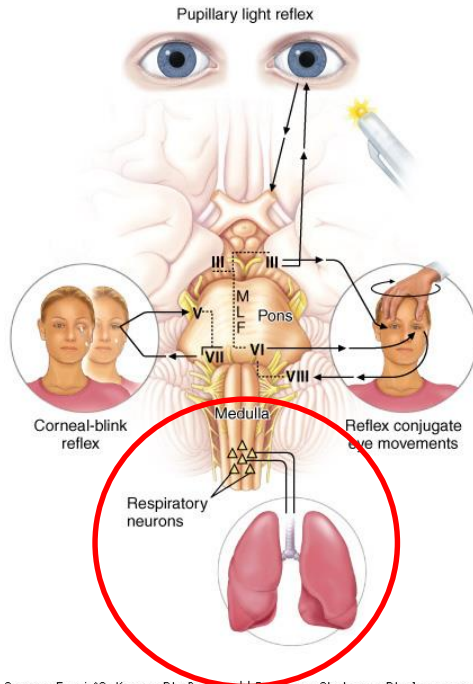


Source: Faudt AS, Kasper DL, Braunwald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine*, 17th Edition; <http://www.accessmedicine.com>  
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**Normal: tonisk respons mot stimulus,  
nystagmus til motsatt side**

**Utslukket: Ingen øybevegelse**

# Apnétest



Source: Fauci AS, Kasper DL, Braunholtz H, Hauser SL, Longo DL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine*, 17th Edition; <http://www.accessmedicine.com>  
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Normoventilert med  $p\text{CO}_2 > 5$   
Preoksygenering 15 min på  $\text{FiO}_2 1.0$   
Respirator frakobles,  $\text{O}_2 6\text{l/min}$  i tuben

Synlig åndedrag?  
10 min (avslutt med blodgass som viser  
 $p\text{CO}_2 > 8$ )

Ingen hosterefleks



RAO/LAO: 6,1  
CRA/CAU: 0,01

OUS Rikshospitalet  
Angio 2  
C: 512,0, W: 1024,0



Bilde 1 av 23  
ACC sin 3fps  
29.08.2019, 18:41:08  
Cine Rate: 3

# Cerebral angiografi - front

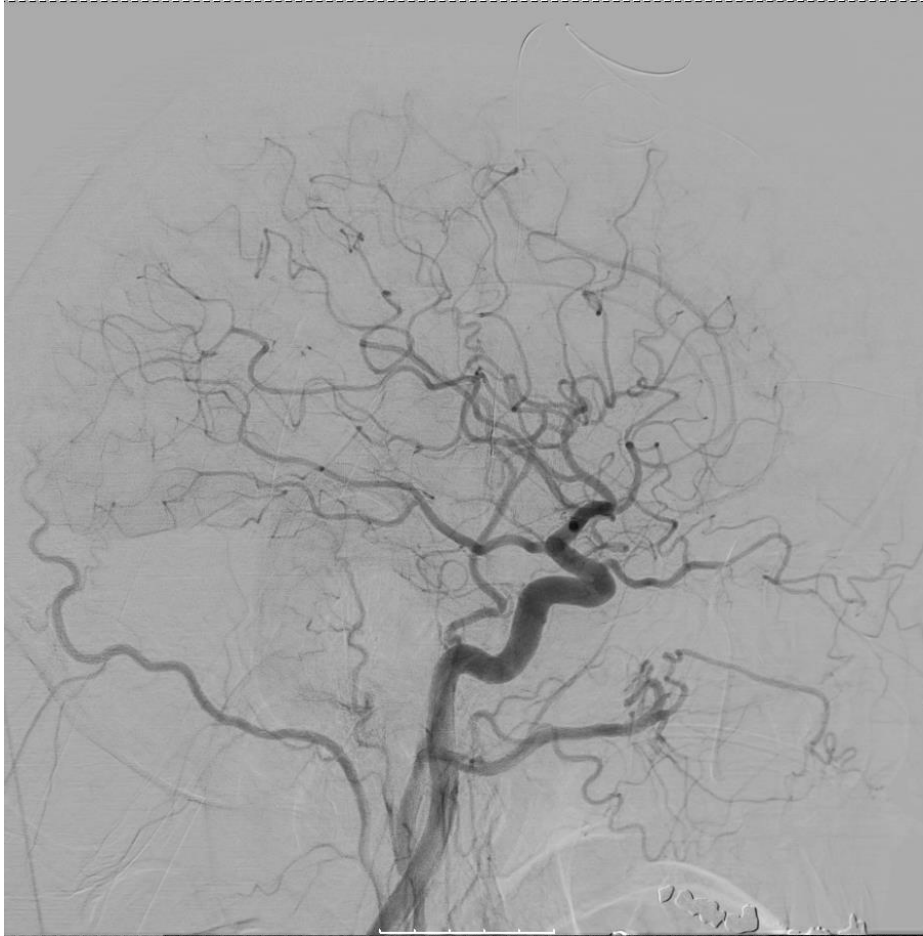


Normal sirkulasjon

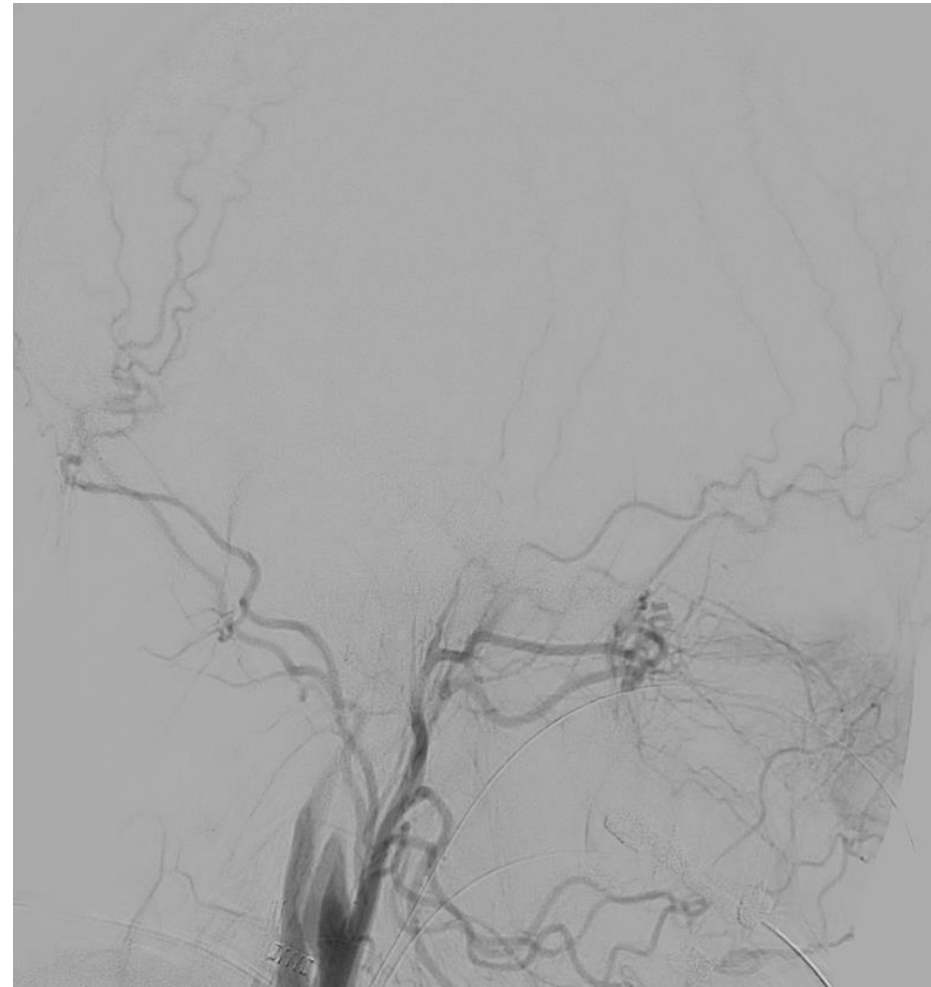


Ingen intrakraniell sirkulasjon

# Cerebral angiografi – side

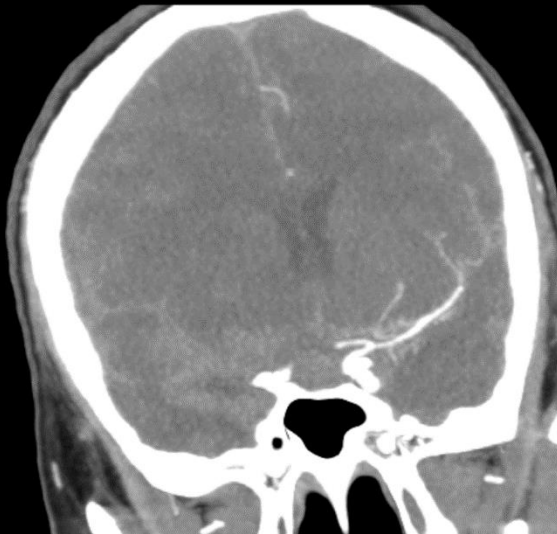
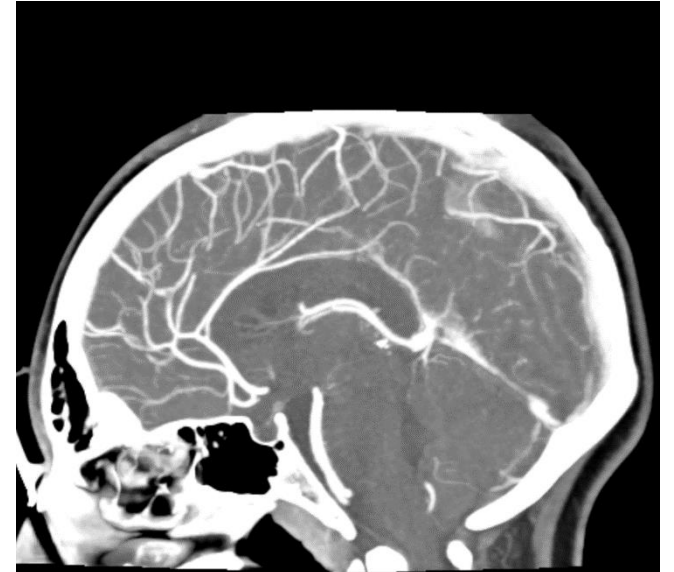
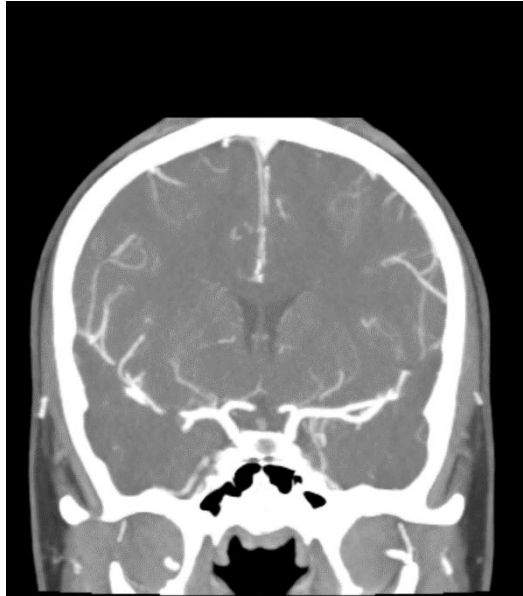
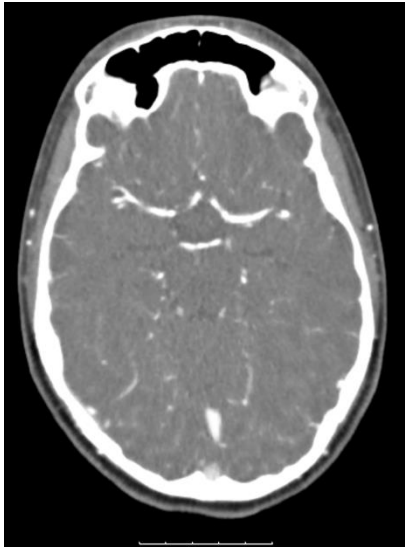


Normal sirkulasjon

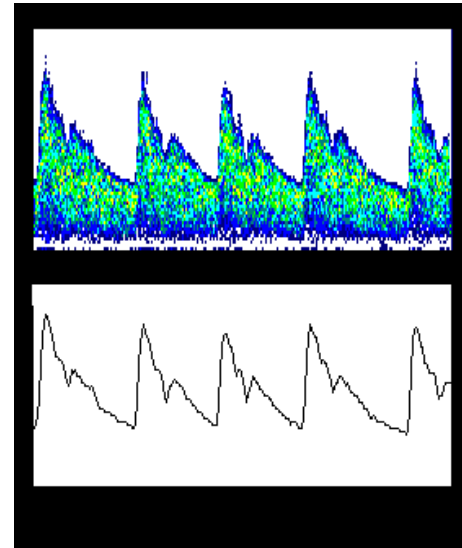
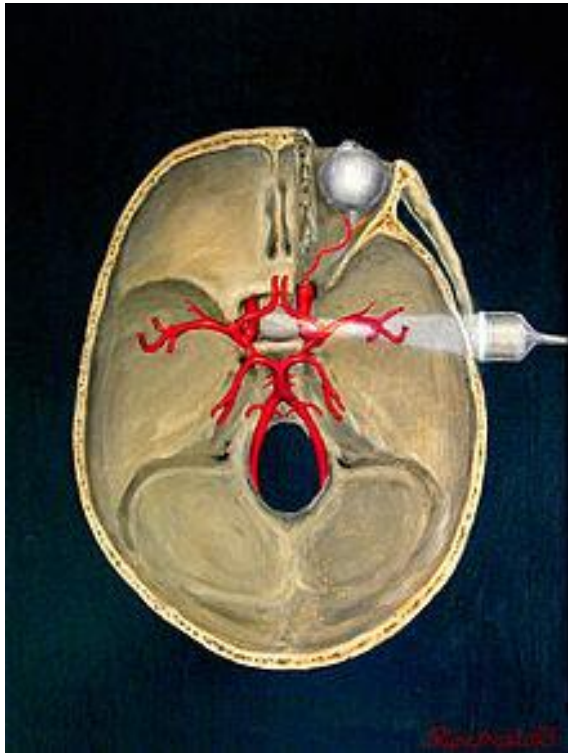


Ingen intrakraniell sirkulasjon

# CT-angiografi

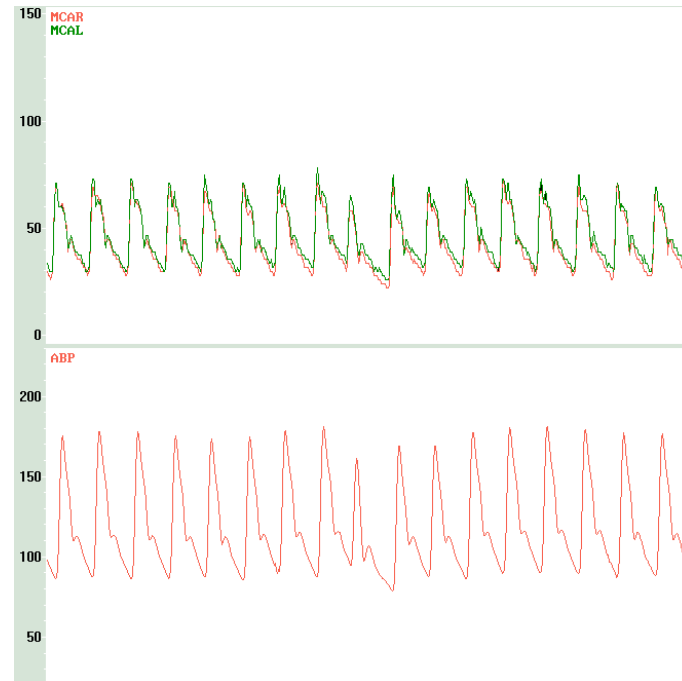
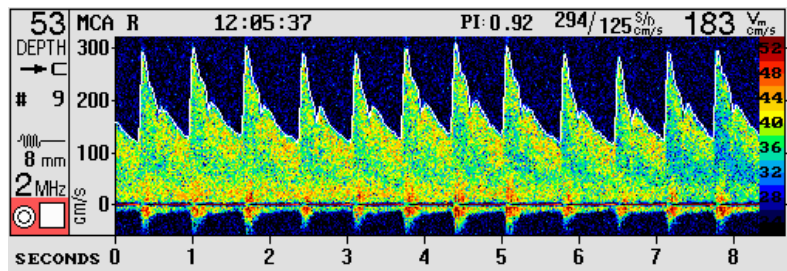


# Er det fortsatt hjernesirkulasjon? Transkraniell Doppler ultralyd



spektral

outline



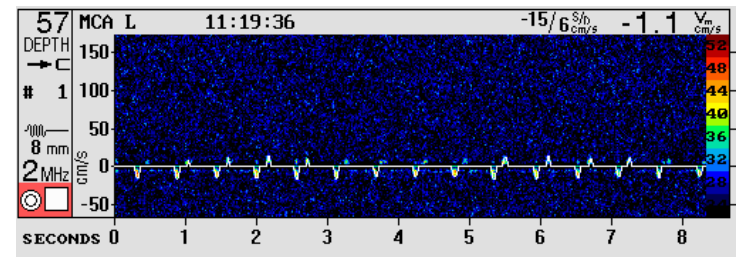
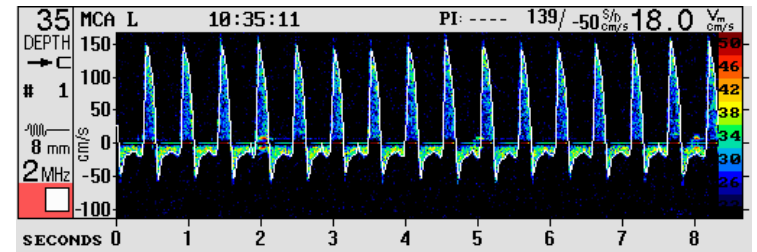
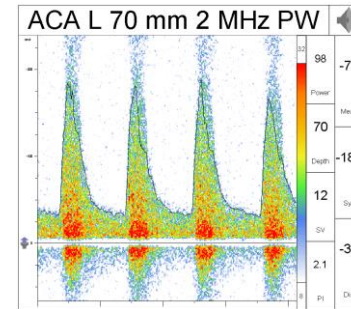
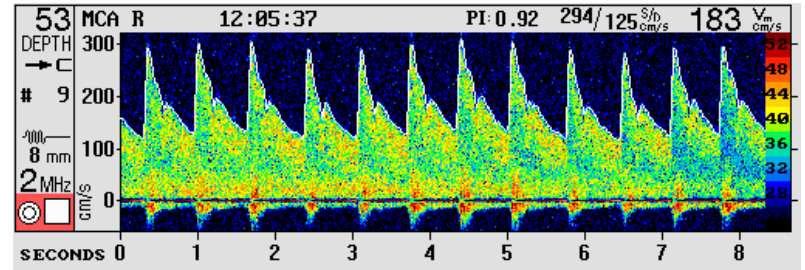
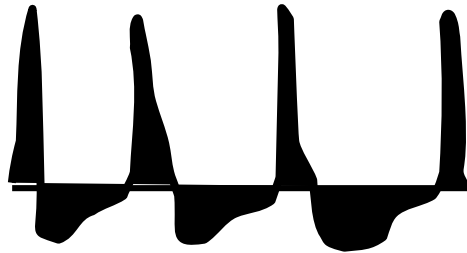
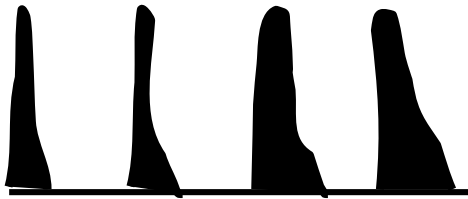
Doppler

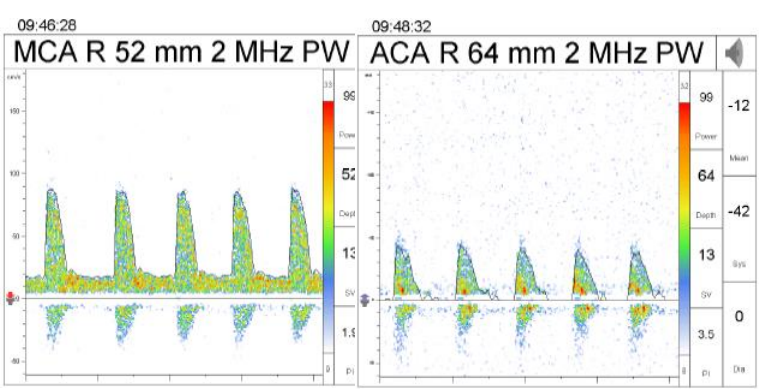
blodtrykk

 ABP

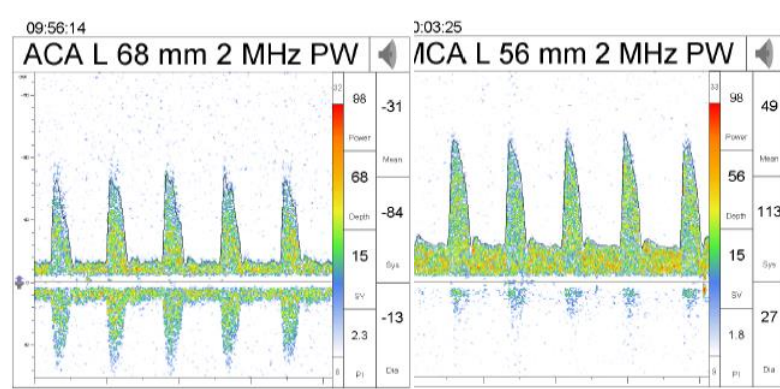
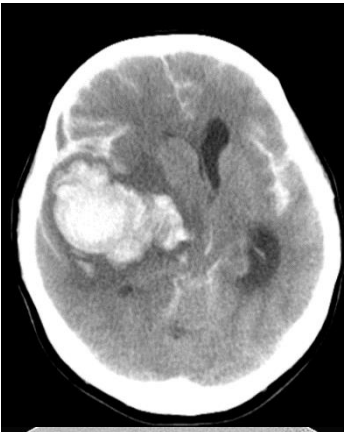


 ICP

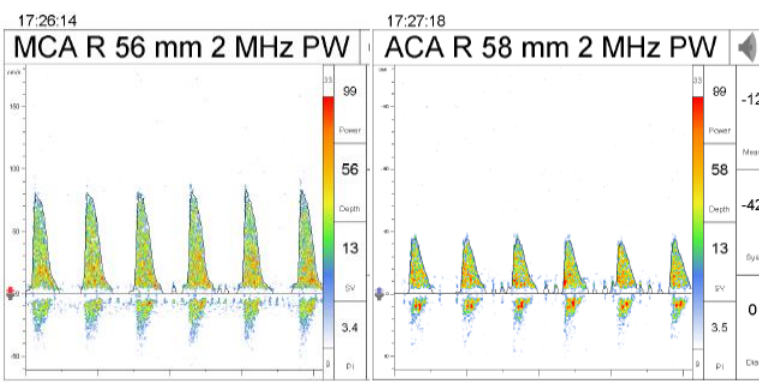




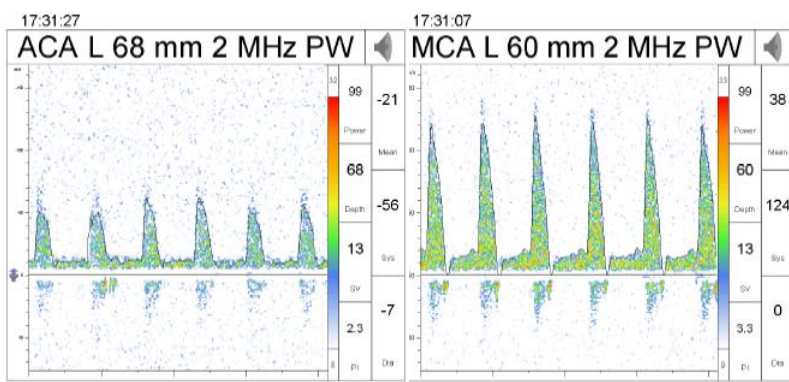
9 timer



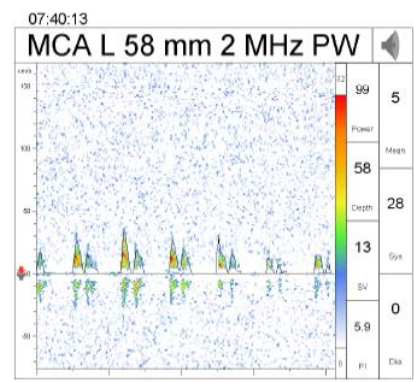
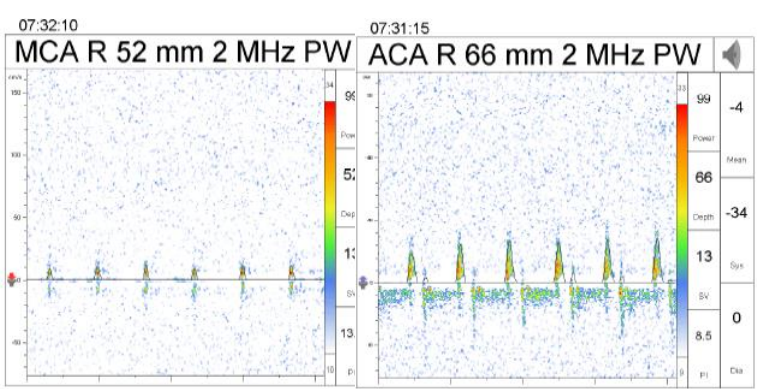
9 timer



17 timer



17 timer



31 timer

