

# TCD IN CNS INFECTIONS

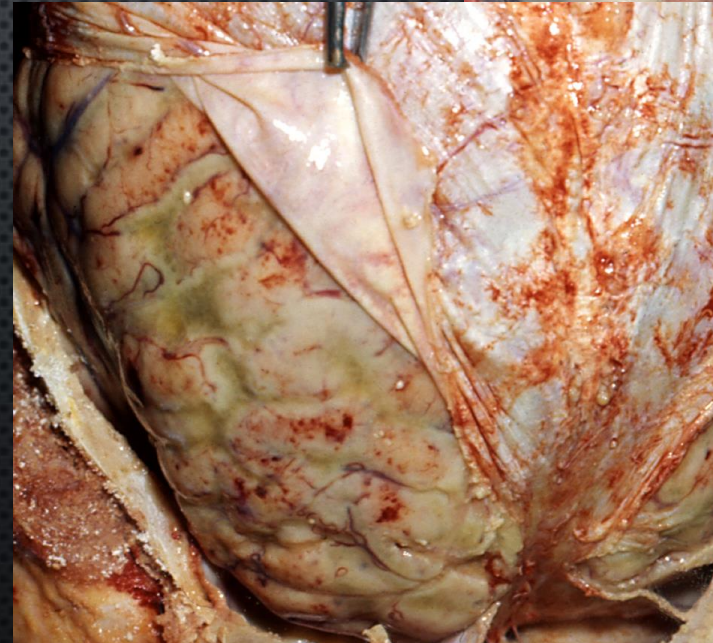
NICOLE F O'BRIEN, MD

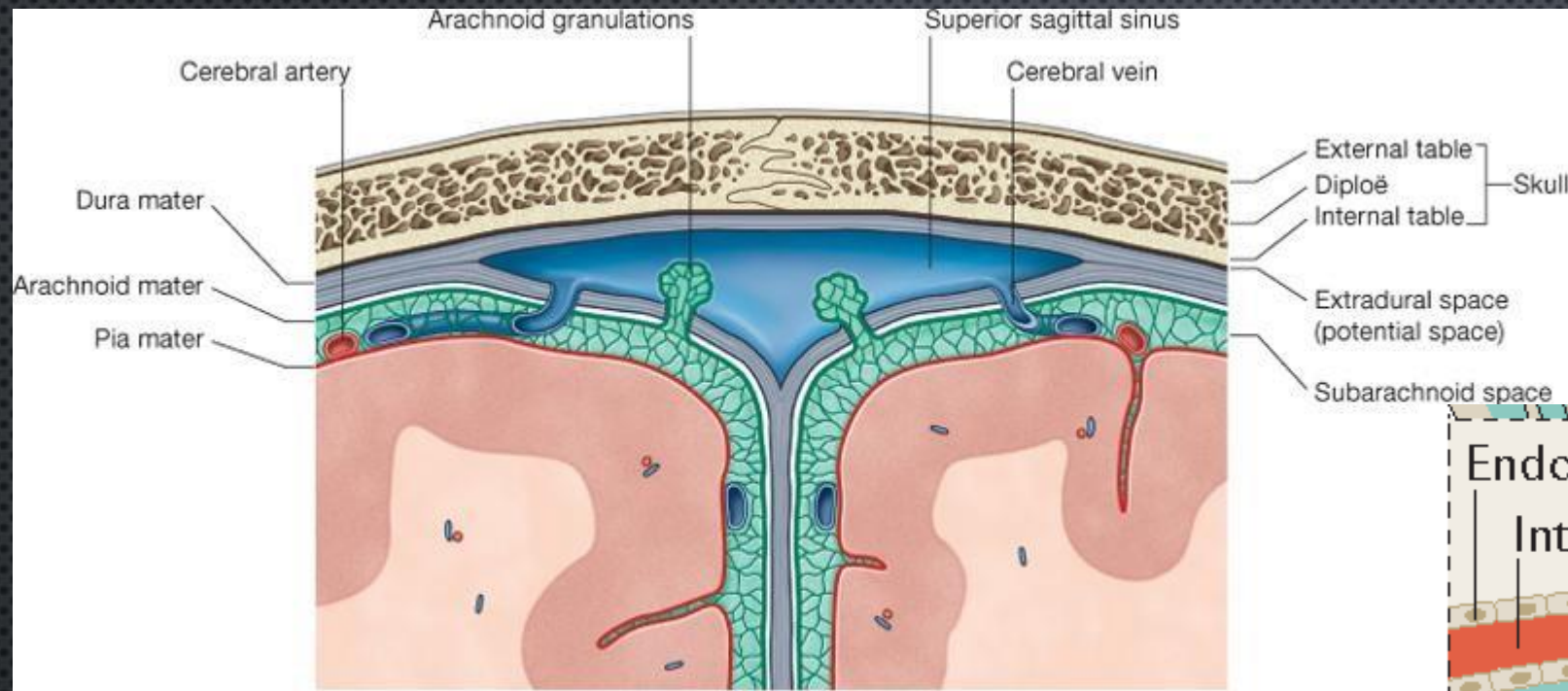
NATIONWIDE CHILDREN'S HOSPITAL

COLUMBUS, OH

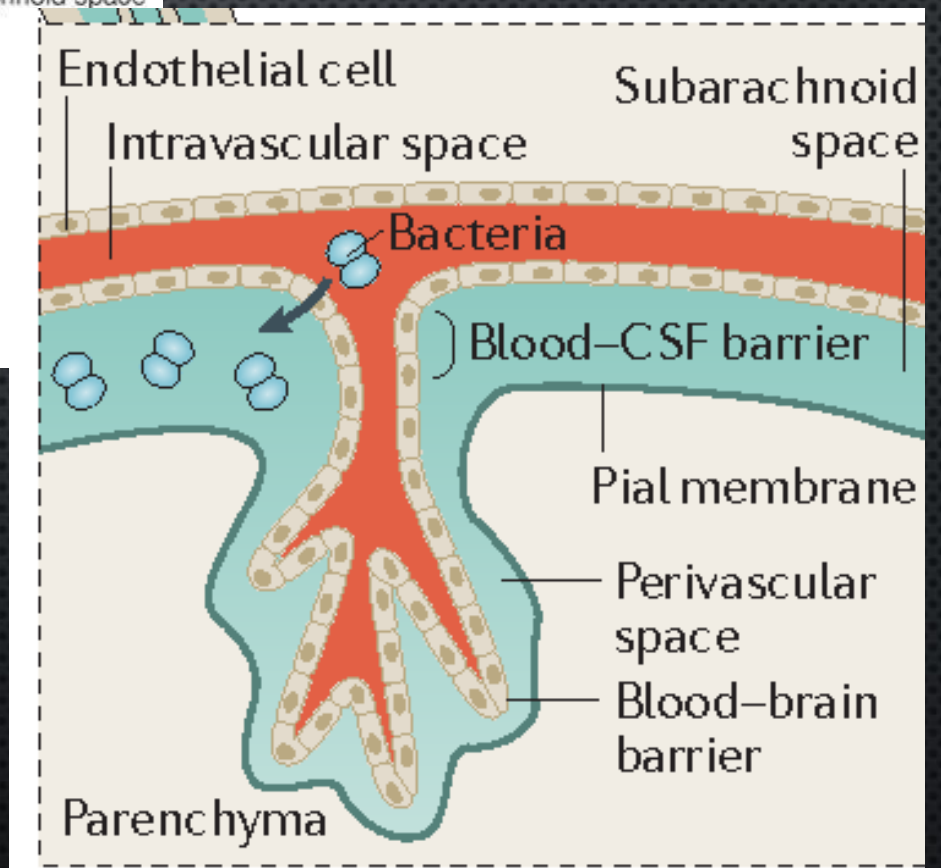
# BACTERIAL MENINGITIS

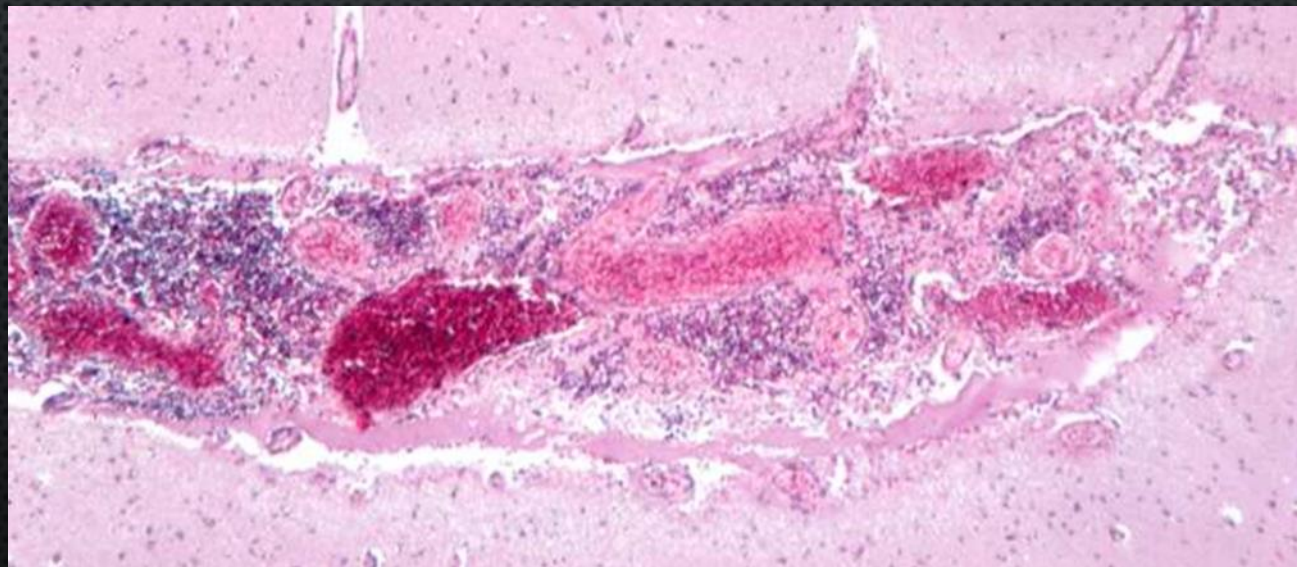
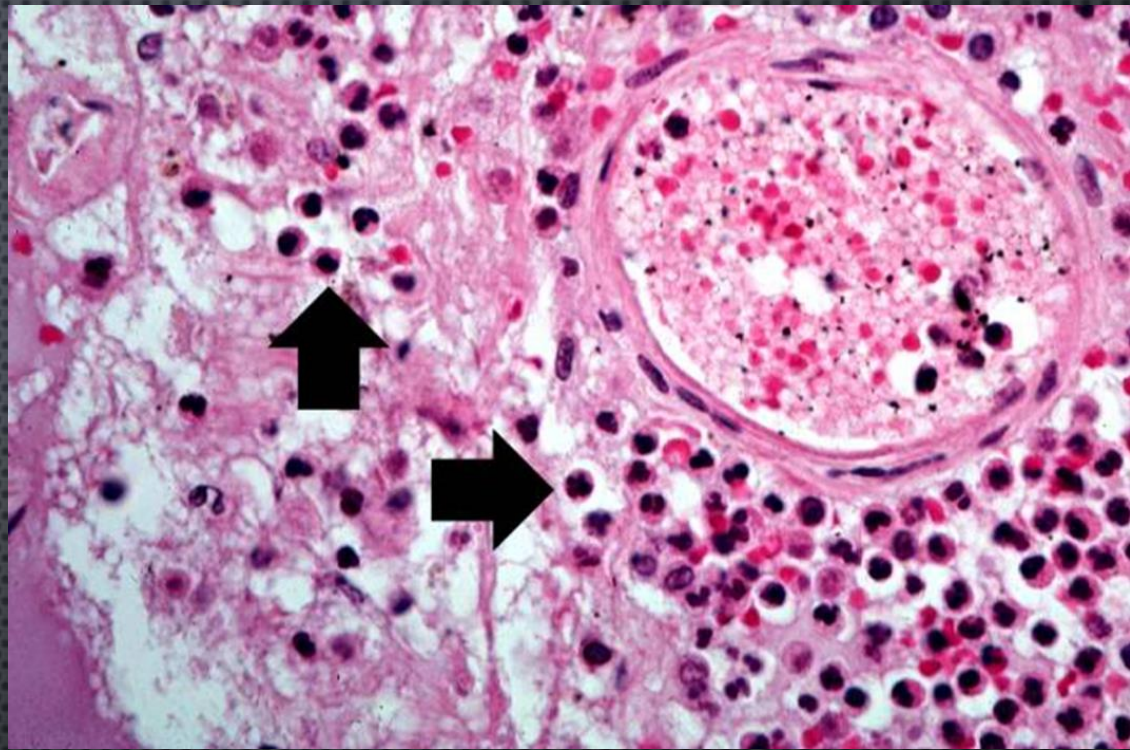
- PURULENT EXUDATE LEPTOMENINGES

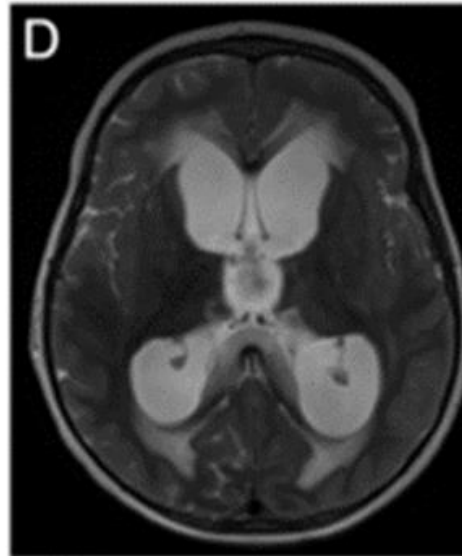
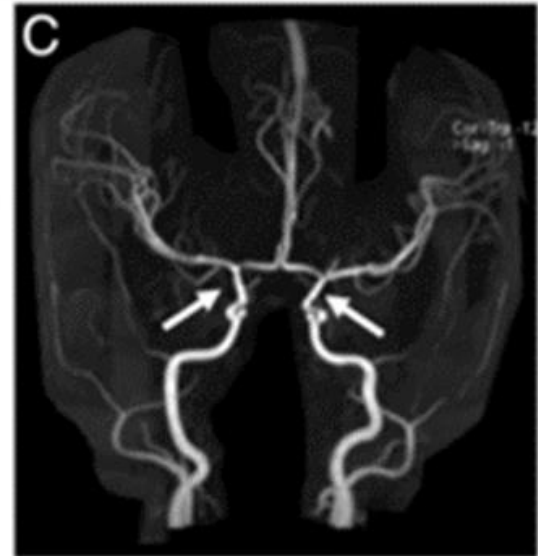
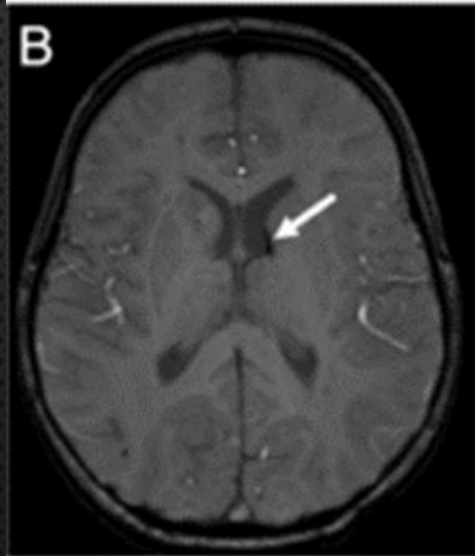
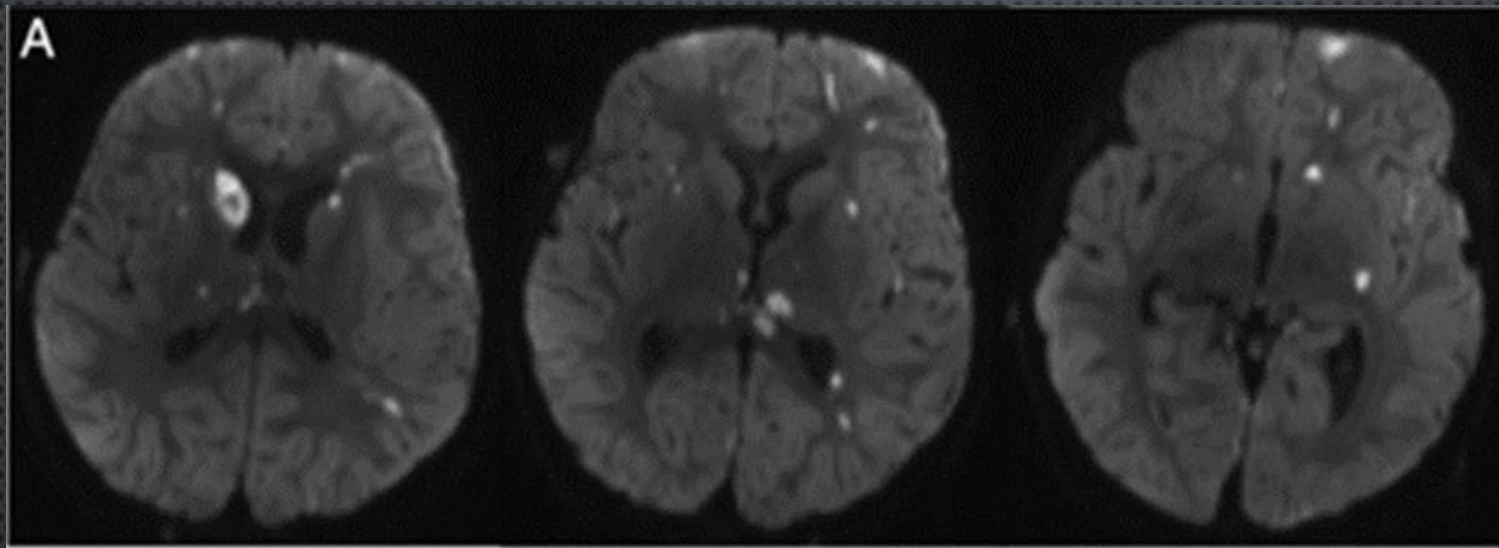




Drake: Gray's Anatomy for Students, 2nd Edition.  
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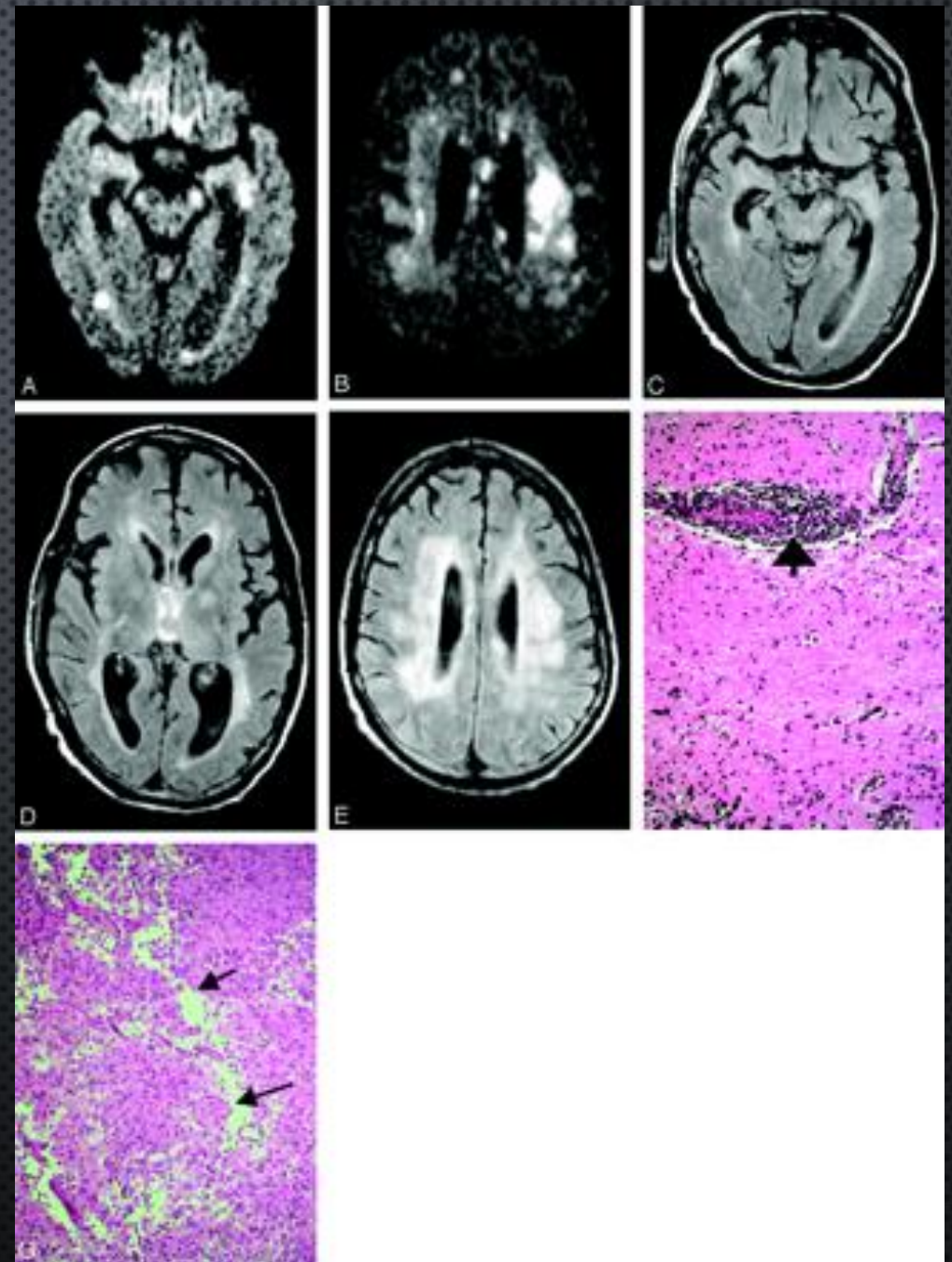






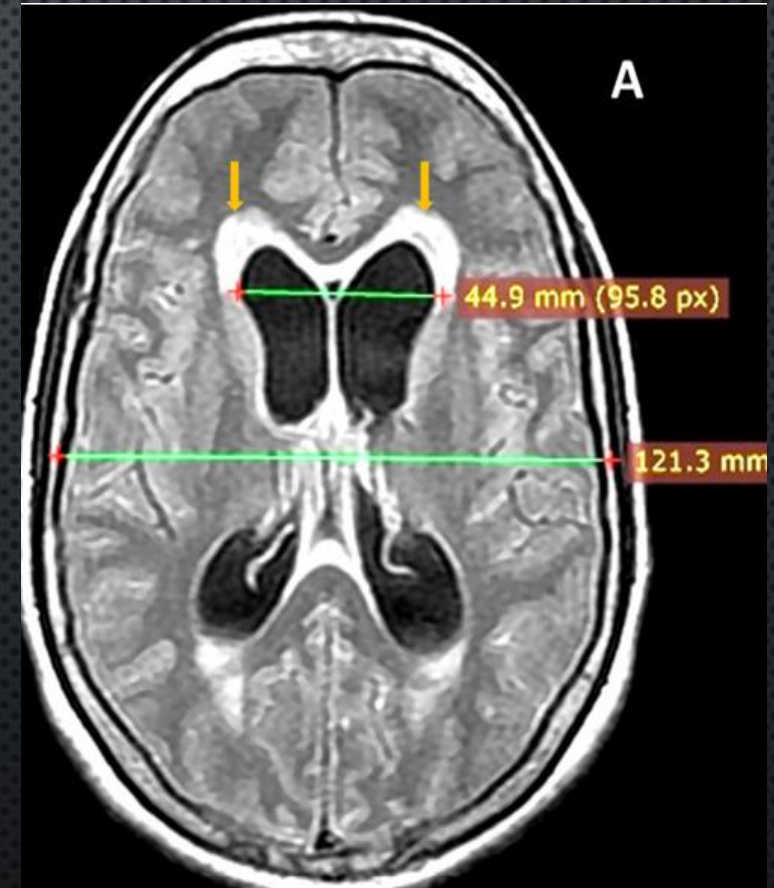
# VIRAL ENCEPHALITIS

- +/- MENINGOCEPHALITIS



# TUBERCULOSIS MENINGITIS

Thick grey shaggy exudate encasing cranial nerves & blood vessels

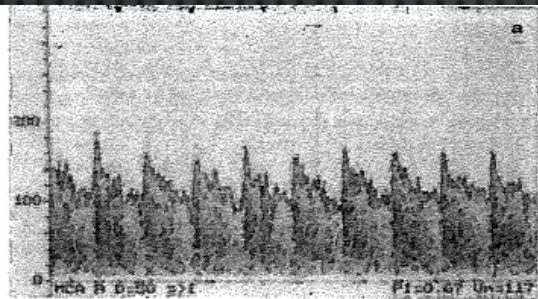


# NEUROLOGIC COMPLICATIONS OF CNS INFECTION

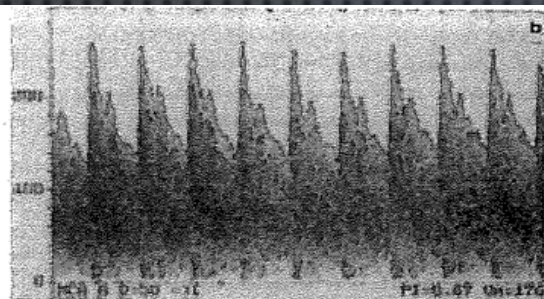
- LARGE VESSEL VASOSPASM/VASCULITIS
- OBSTRUCTIVE HYDROCEPHALUS
- CEREBRAL INFARCTIONS
- VENOUS SINUS THROMBOSIS
- CEREBRAL EDEMA/INCREASED INTRACRANIAL PRESSURE



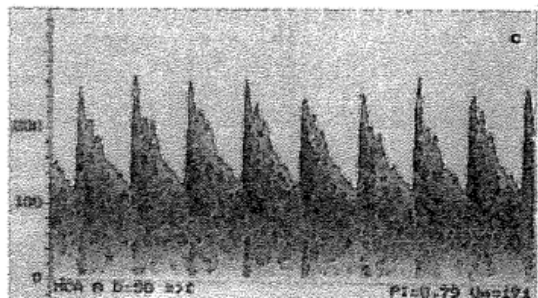
Predominant Pathophysiologic change	Vs	Vm	Vd	PI	LR	Venous signal
Vasospasm/ vasculitis	↑↑	↑↑	↑↑	↔	↑↑	↔
Sinus venous thrombosis	↔	↔	↓	↑	↔	↑↑
Obstructive hydrocephalus	↔/↓	↔/↓	↓↓	↑↑	↔	↔
Cerebral Infarctions	↔/↓	↔/↓	↔/↓	↔/↑	↔	↔



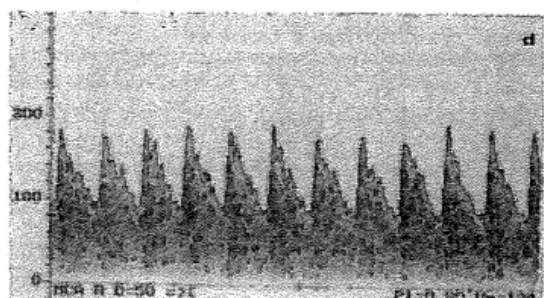
a: day 1, GCS 13



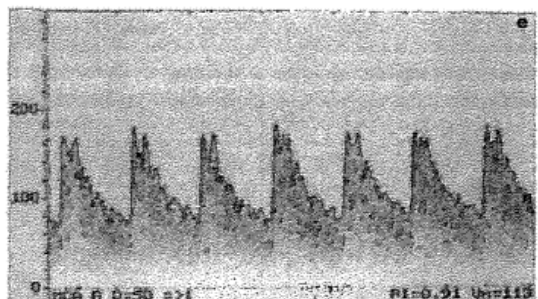
b: day 3, GCS 12



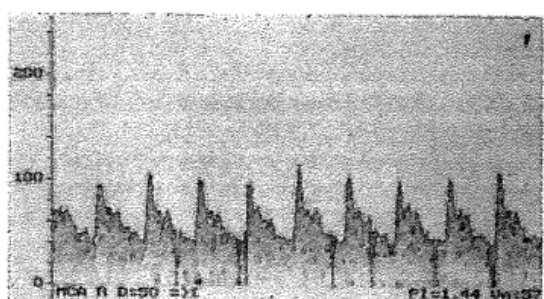
c: day 5, GCS 12



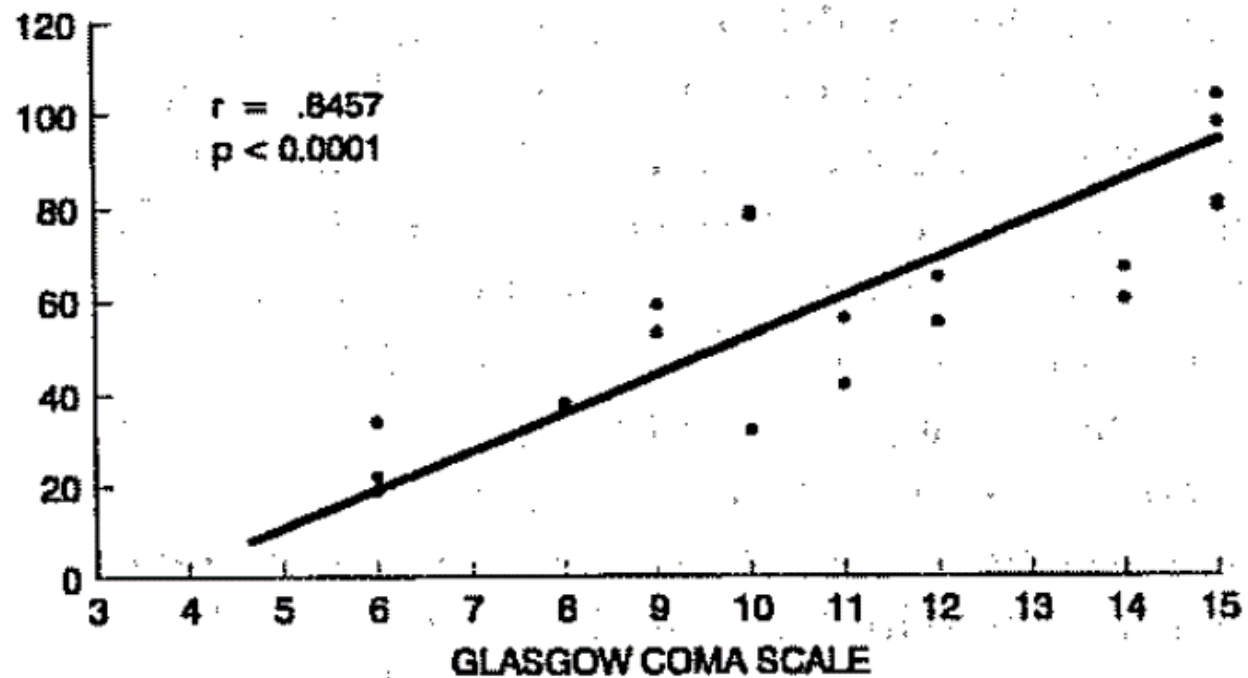
d: day 8, GCS 13



e: day 14, GCS 15

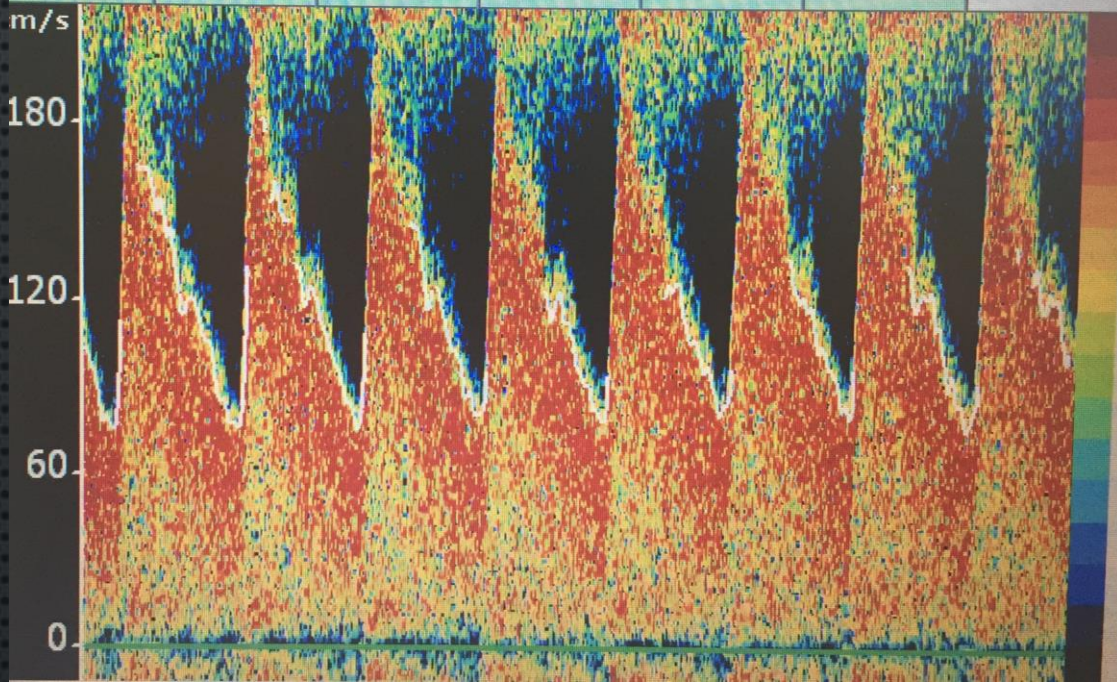


f: day 21, GCS 15

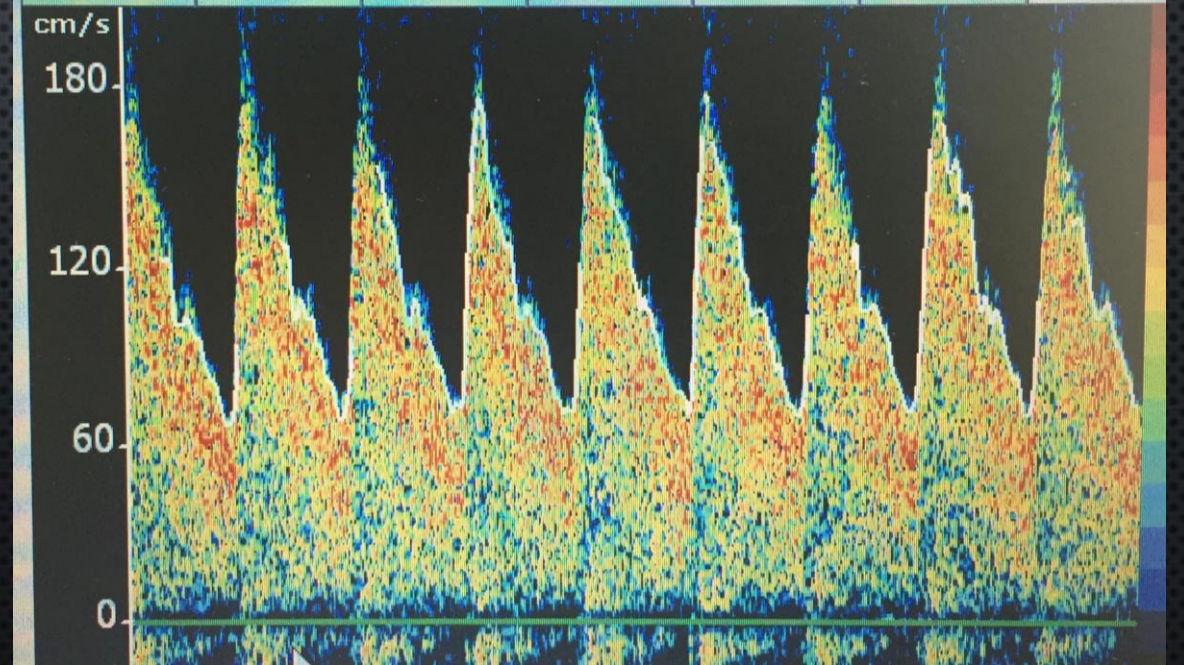


(a)

<b>124</b>	<b>204</b>	<b>83.9</b>	<b>0.97</b>	<b>0.58</b>	<b>2.43</b>	<b>106</b>
Mean	Peak	EDV	PI	RI	S/D	HR

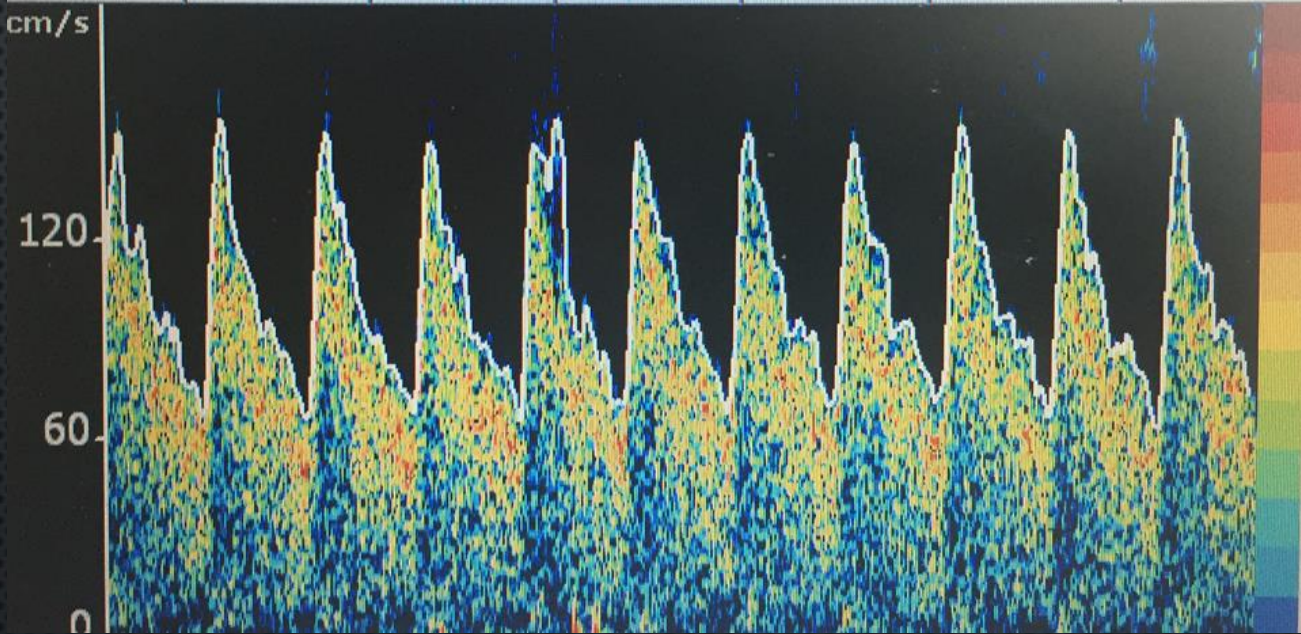


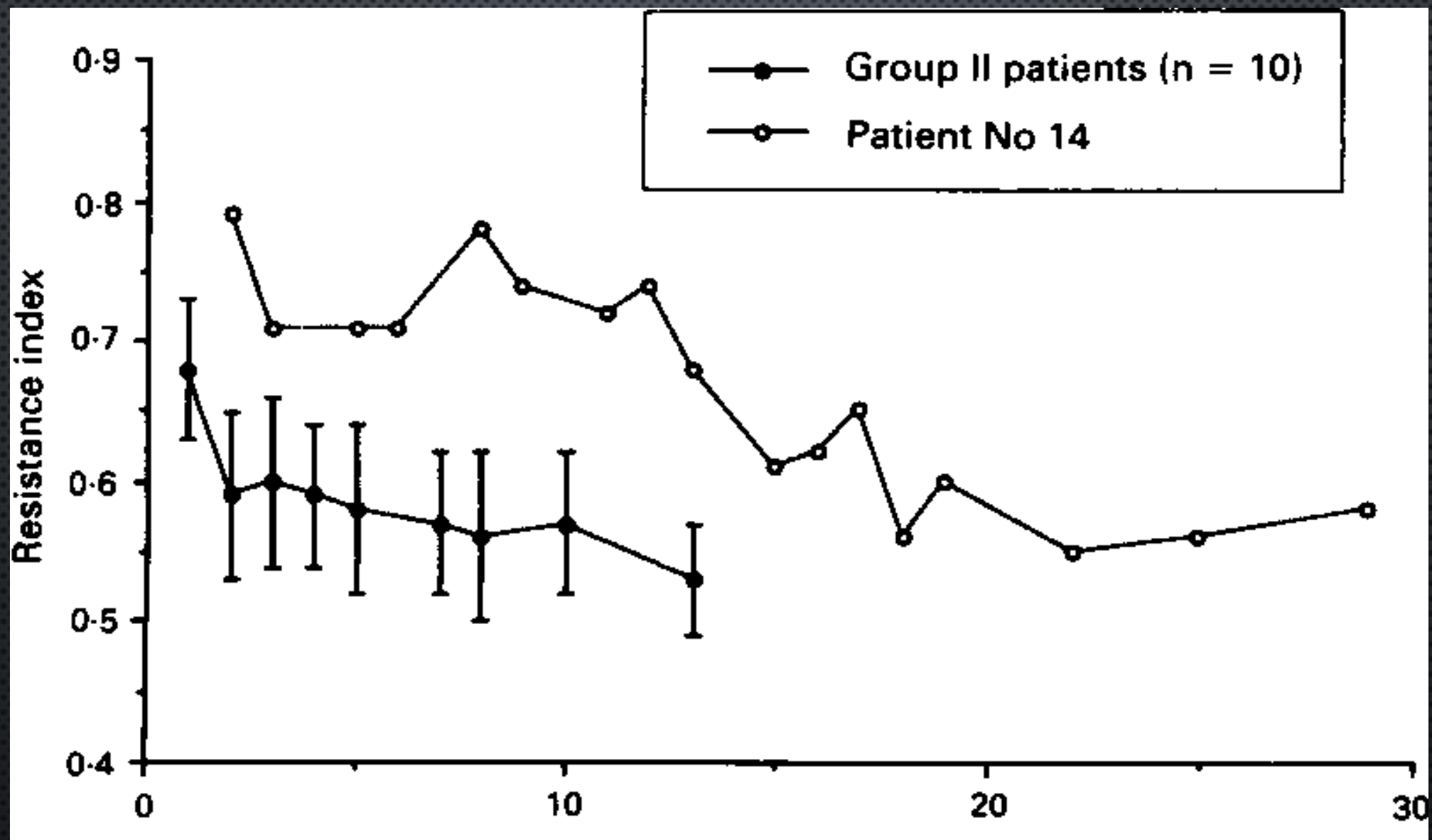
<b>110</b>	<b>181</b>	<b>75.5</b>	<b>0.95</b>	<b>0.58</b>	<b>2.39</b>	<b>111</b>
Mean	Peak	EDV	PI	RI	S/D	HR



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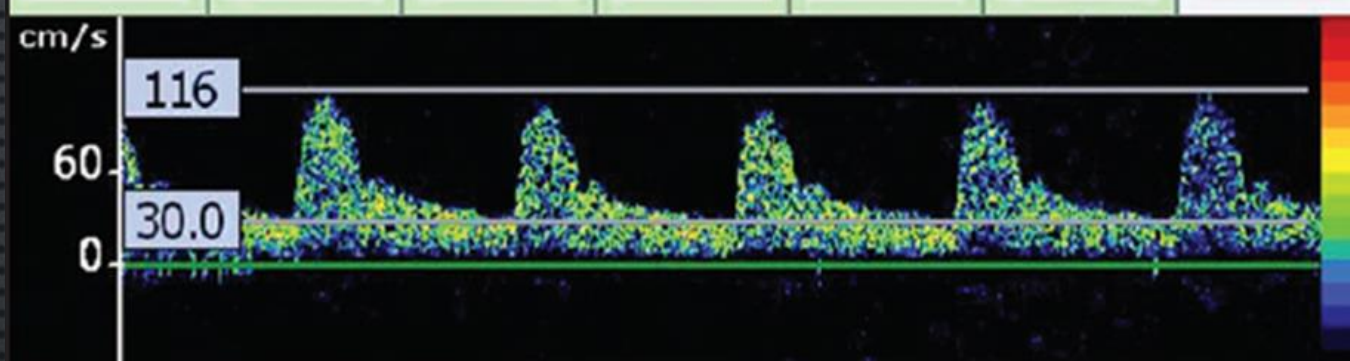
<b>104</b>	<b>152</b>	<b>70.4</b>	<b>0.78</b>	<b>0.53</b>	<b>2.16</b>	<b>163</b>
Mean	Peak	EDV	PI	RI	S/D	HR





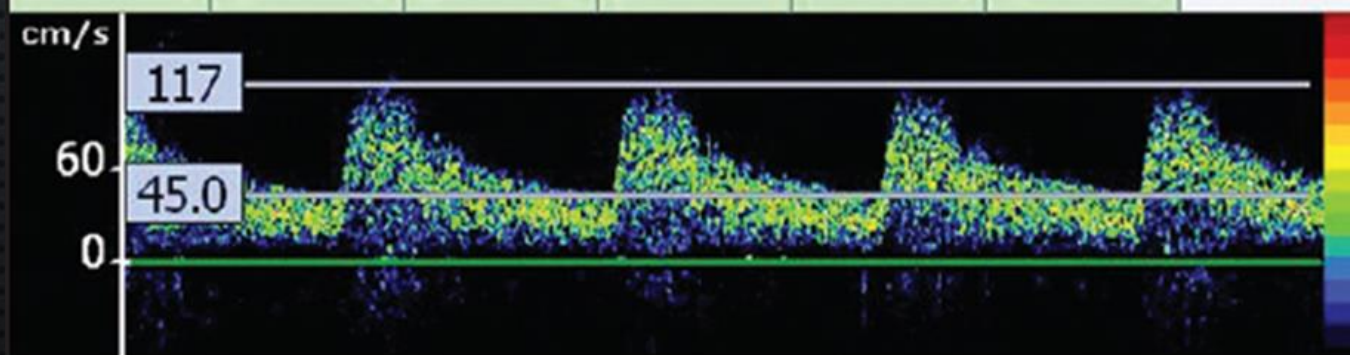
## Day 1- CSF-pressure 37cmH<sub>2</sub>O

<b>58.5</b>	<b>116</b>	<b>30.0</b>	<b>1.46</b>	<b>0.74</b>	<b>3.84</b>	<b>81</b>
Mean	Peak	EDV	PI	RI	S/D	HR

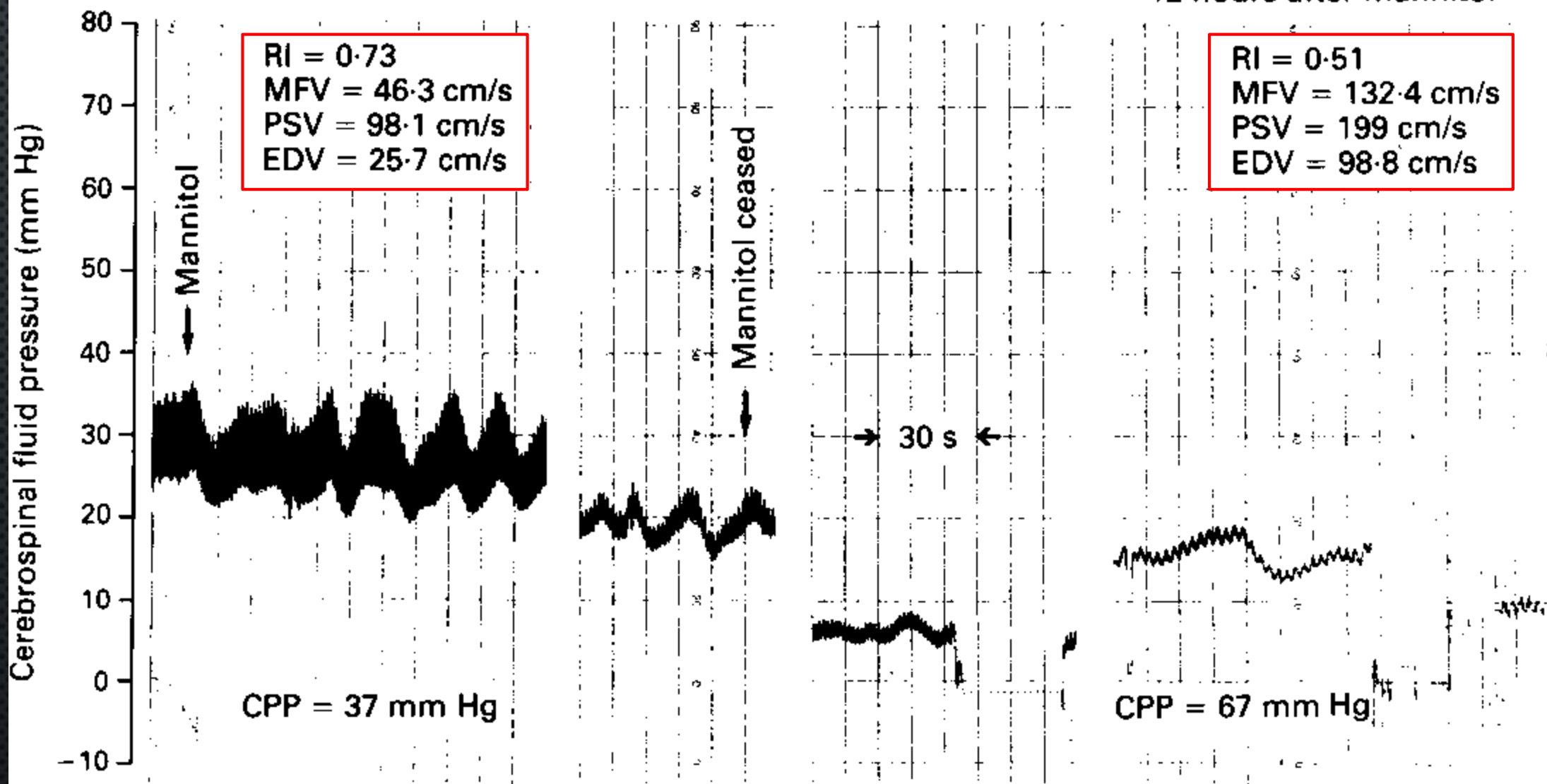


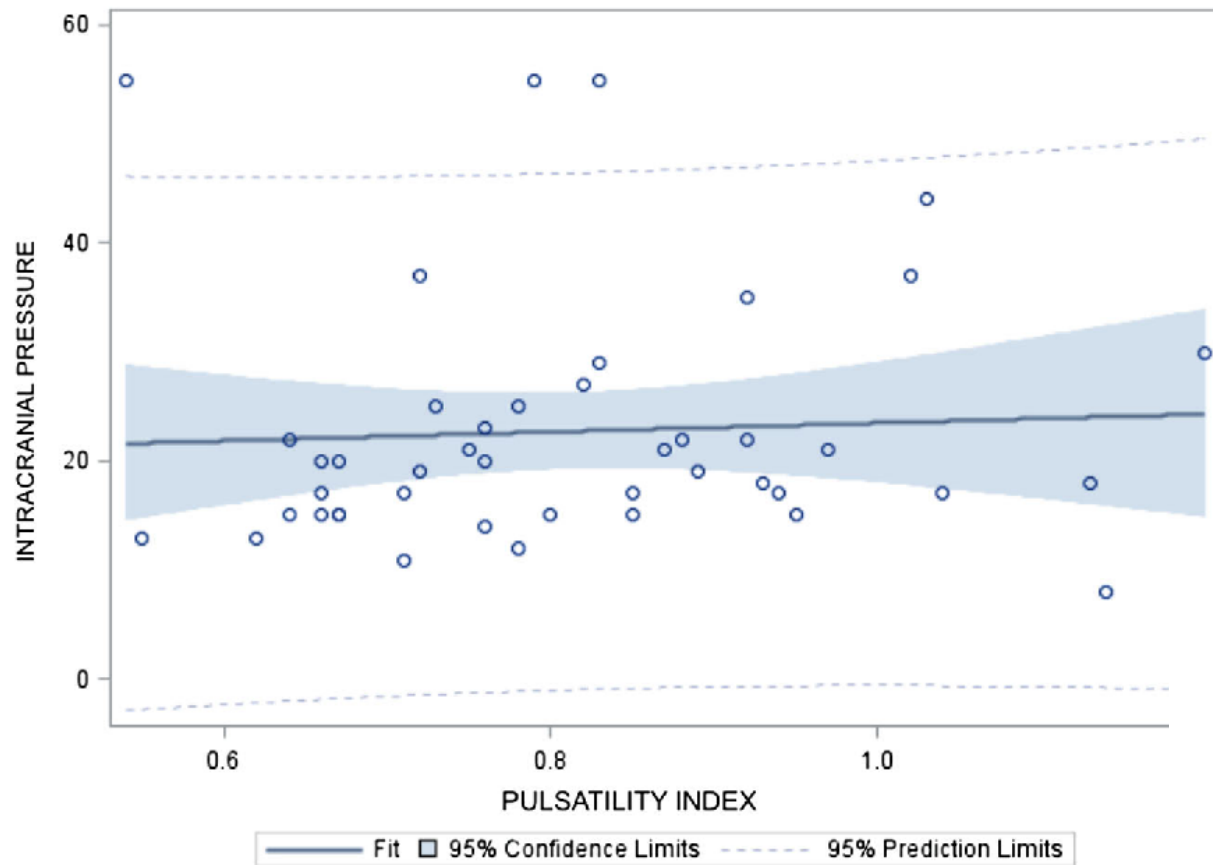
## Day 5- CSF-pressure 16cmH<sub>2</sub>O

<b>67.0</b>	<b>117</b>	<b>42.0</b>	<b>1.12</b>	<b>0.64</b>	<b>2.78</b>	<b>67</b>
Mean	Peak	EDV	PI	RI	S/D	HR

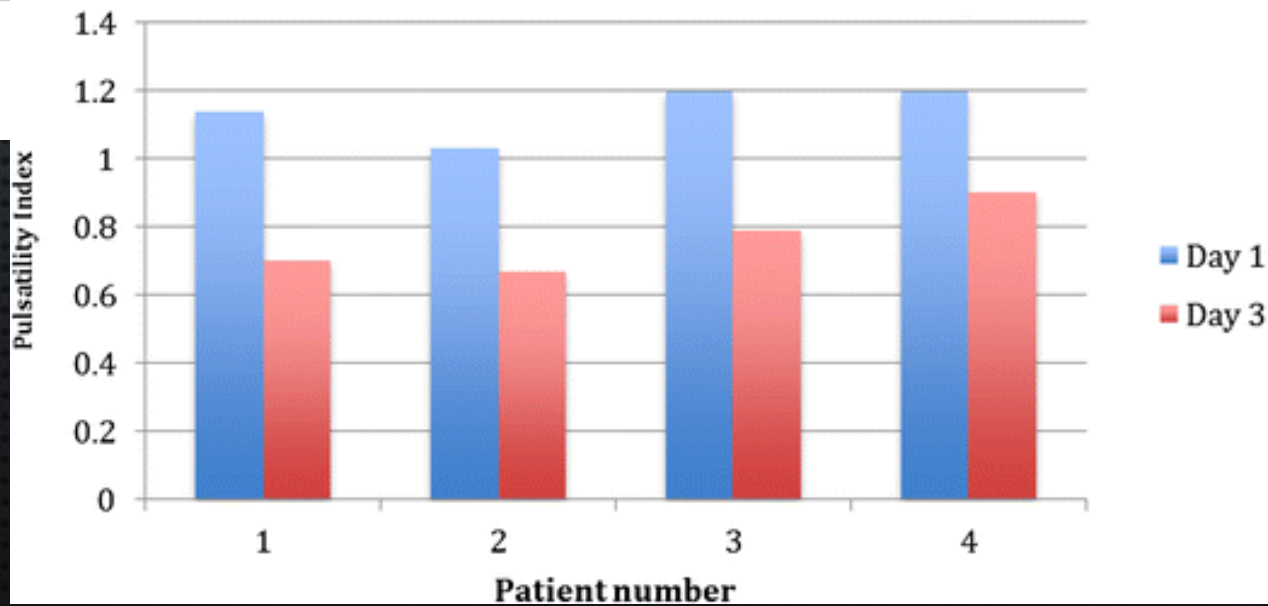


12 hours after mannitol

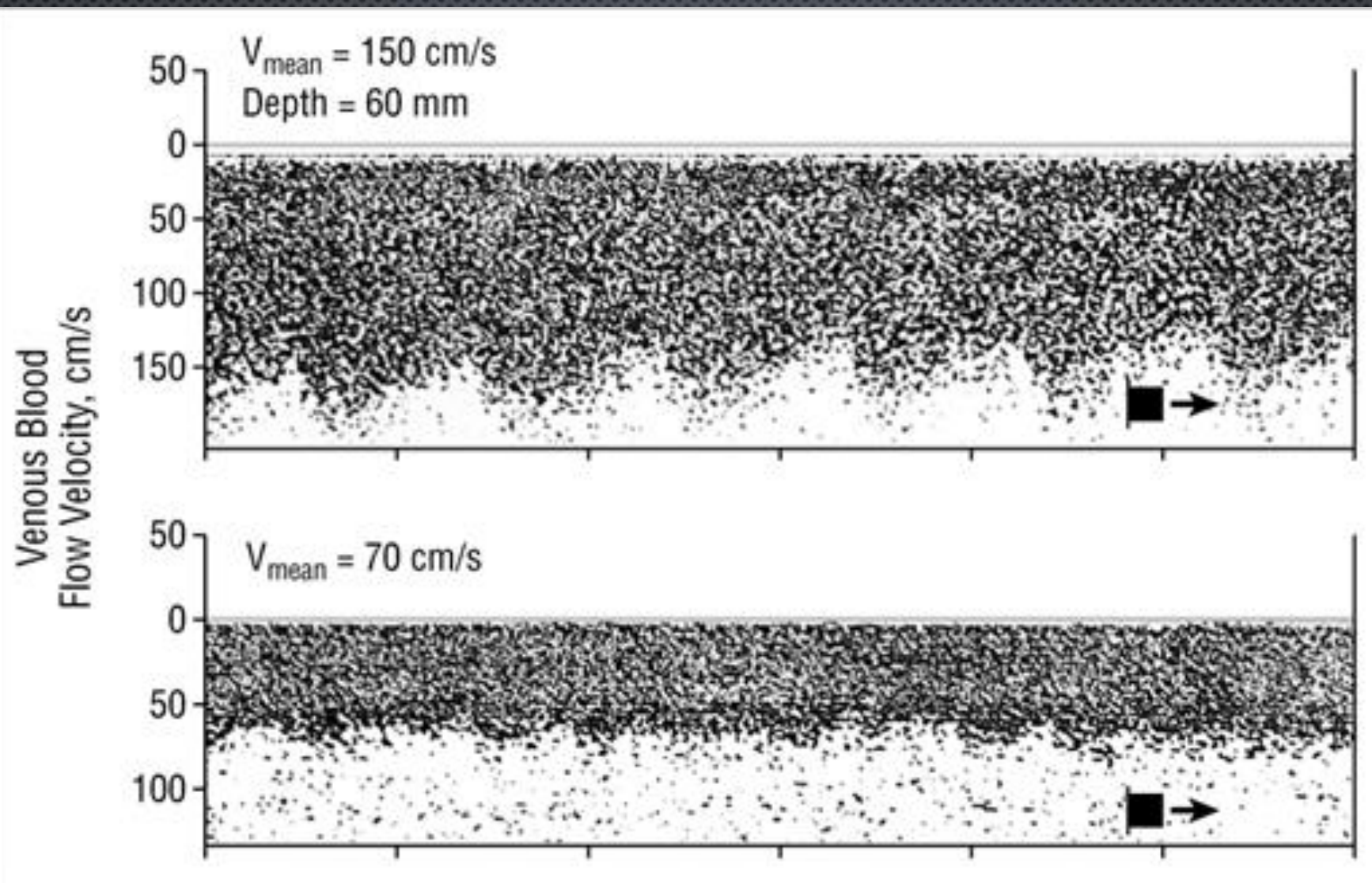




**Pulsatility Index (PI) following CSF diversion**

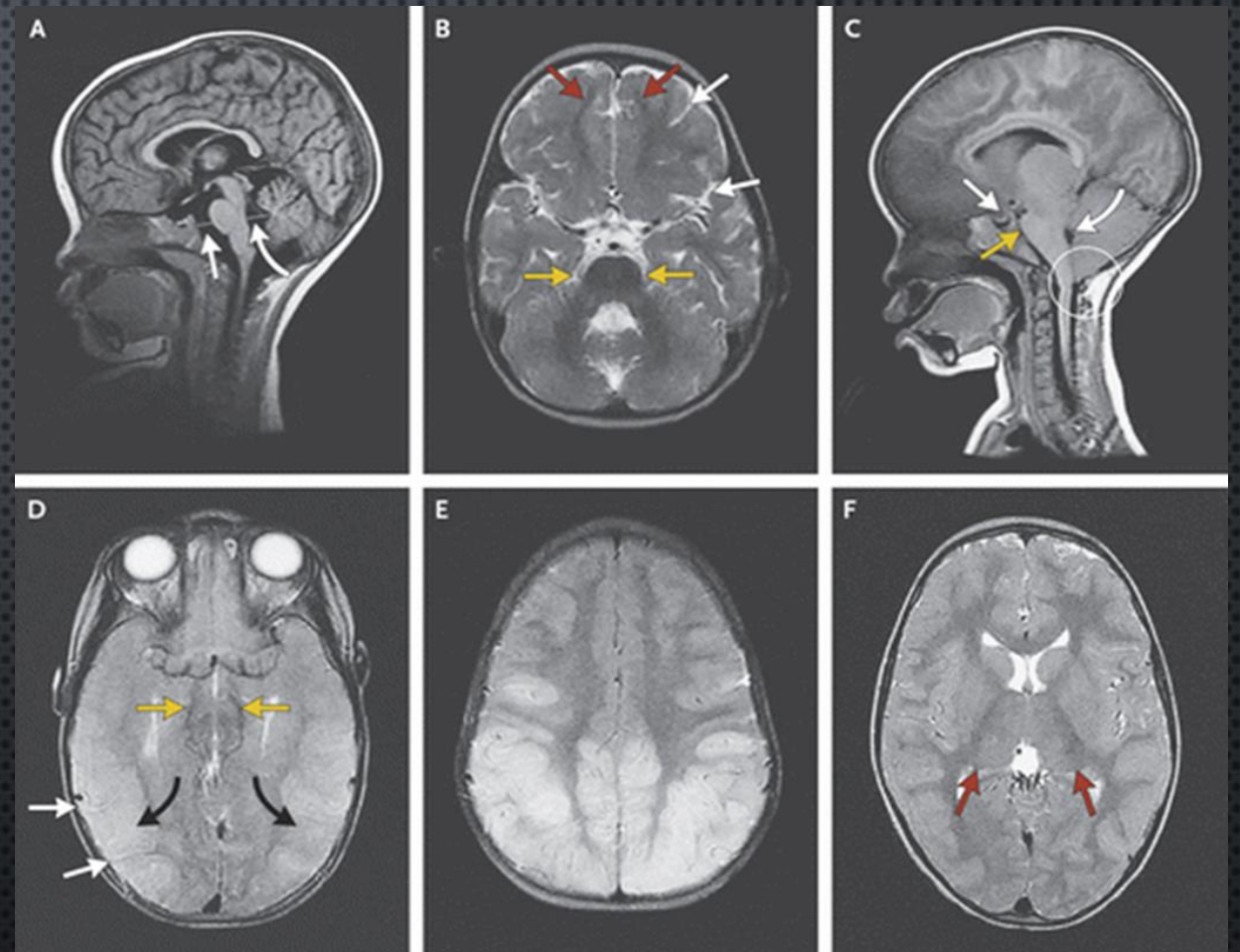




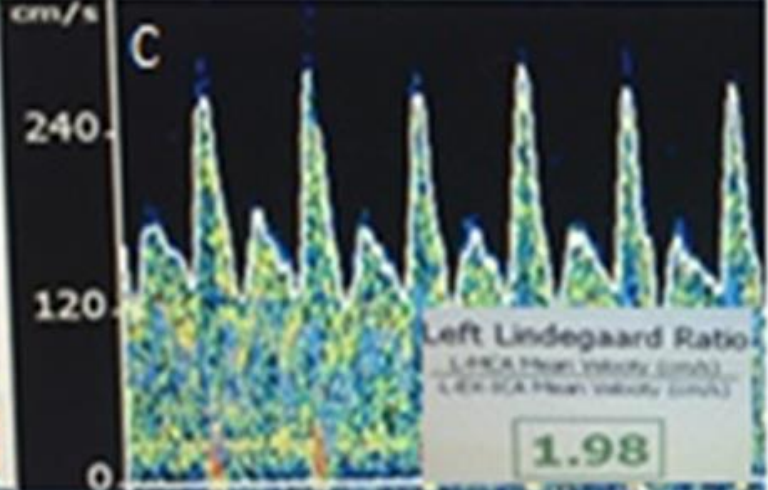
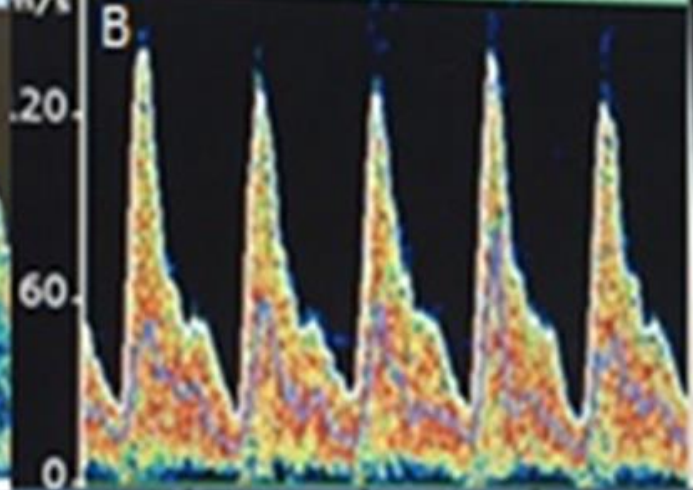
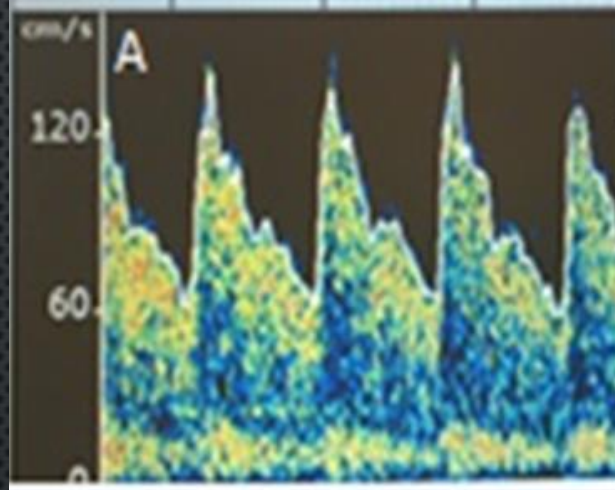


# CEREBRAL MALARIA

- COMATOSE STATE IN CHILD WITH *P FALCIPARUM* PARASITEMIA
- PARASITE DOES NOT LEAVE THE RED BLOOD CELLS



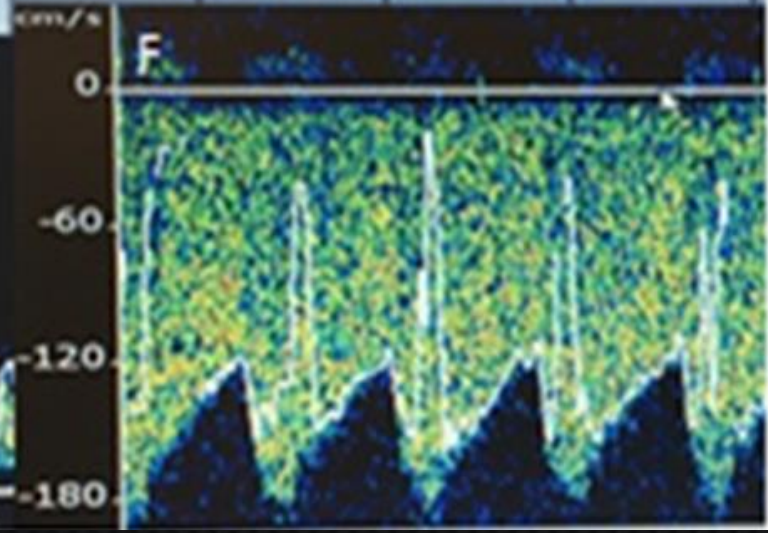
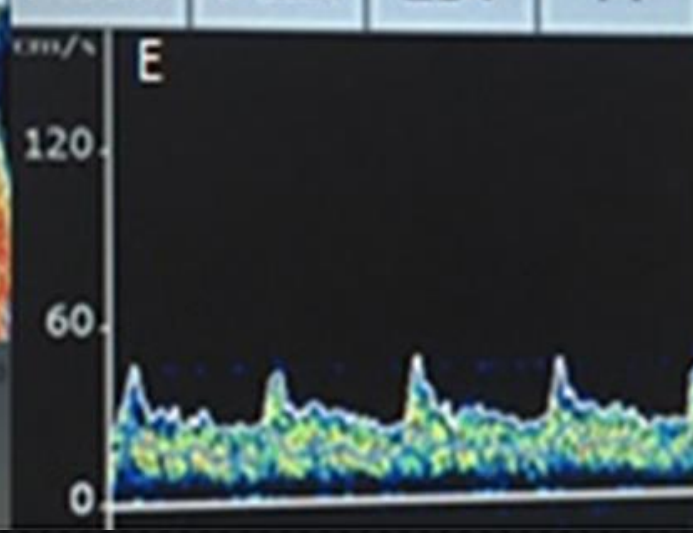
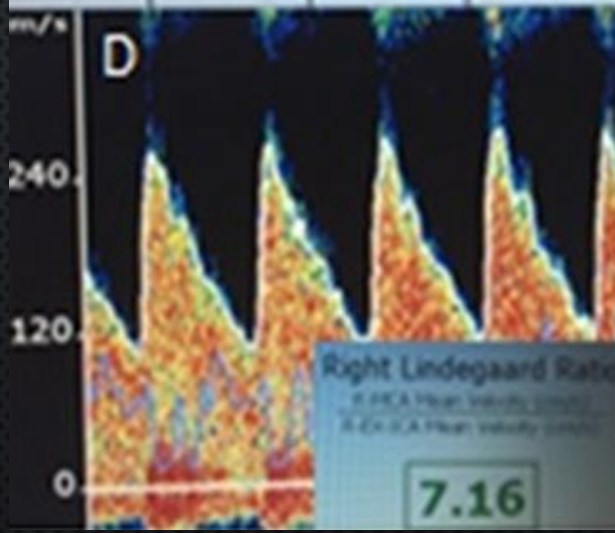
87.0	134	58.3	0.86	65.8	144	27.3	1.75	163	269	107	0.98
Mean	Peak	EDV	PI	Mean	Peak	EDV	PI	Mean	Peak	EDV	PI

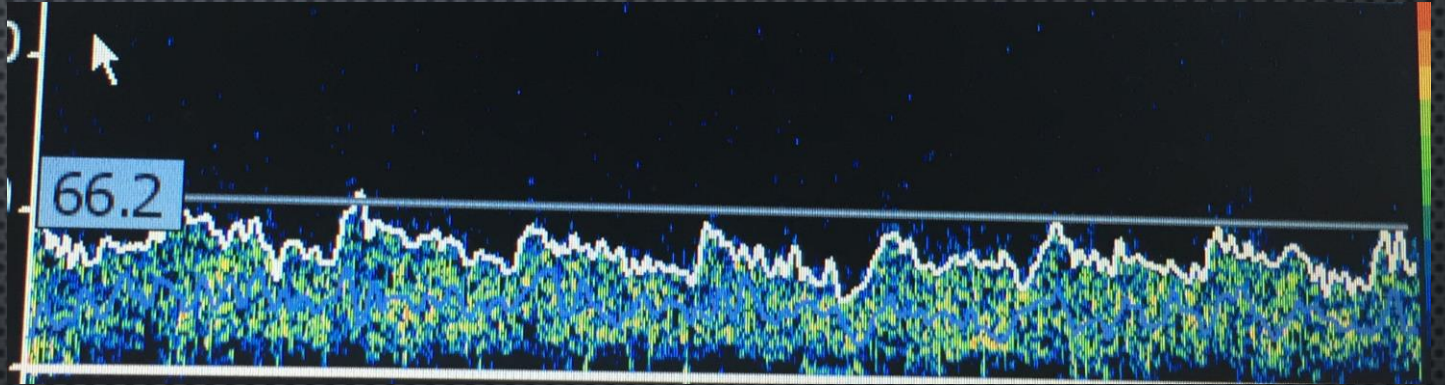


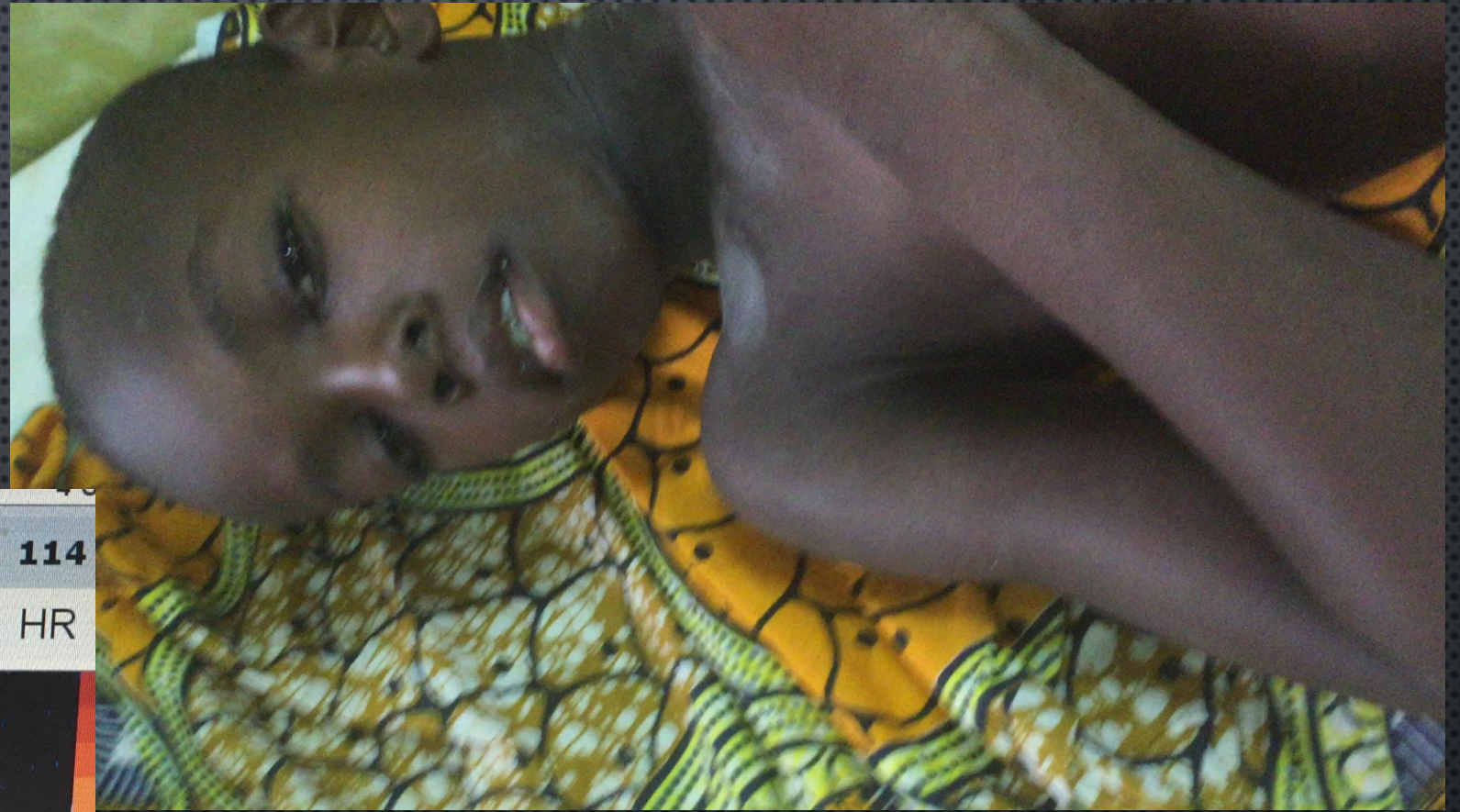
182	276	111	0.90
Mean	Peak	EDV	PI

28.9	47.0	22.1	0.85
Mean	Peak	EDV	PI

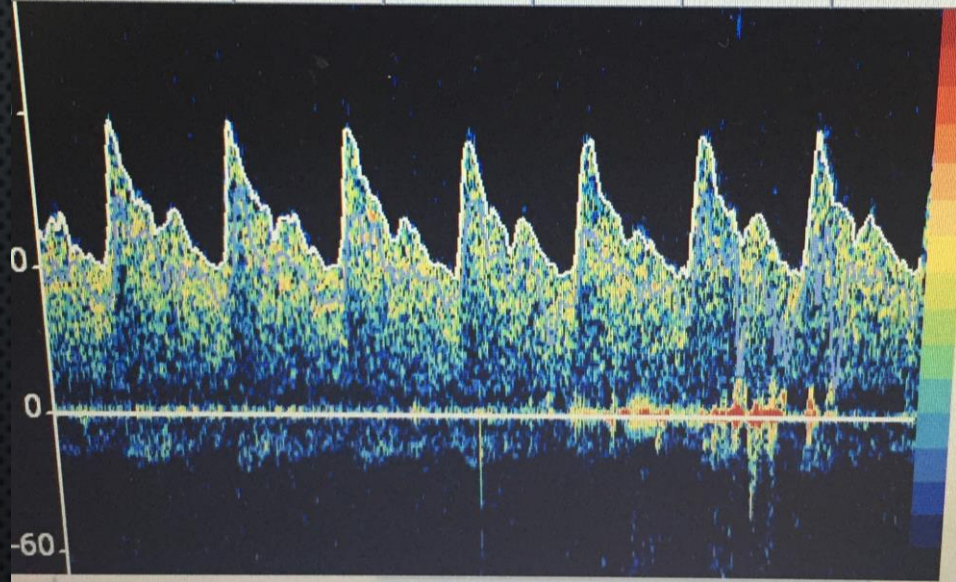
Mean	Peak	EDV	PI
-125	-155	-43.5	0.71





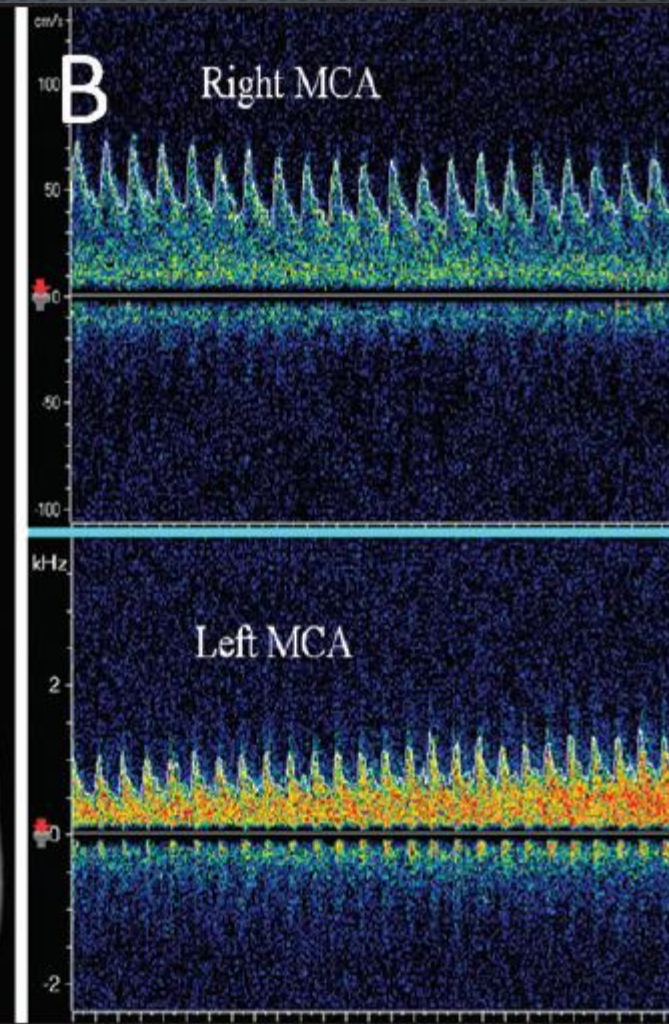
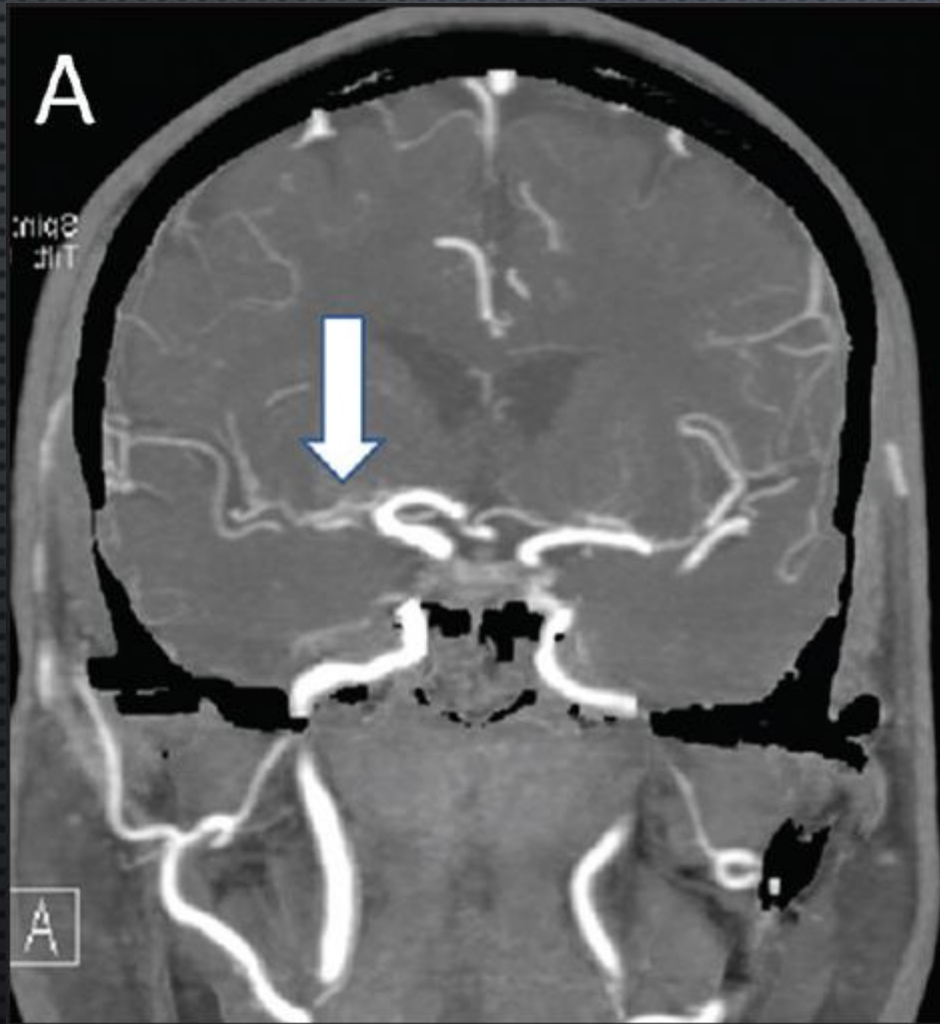


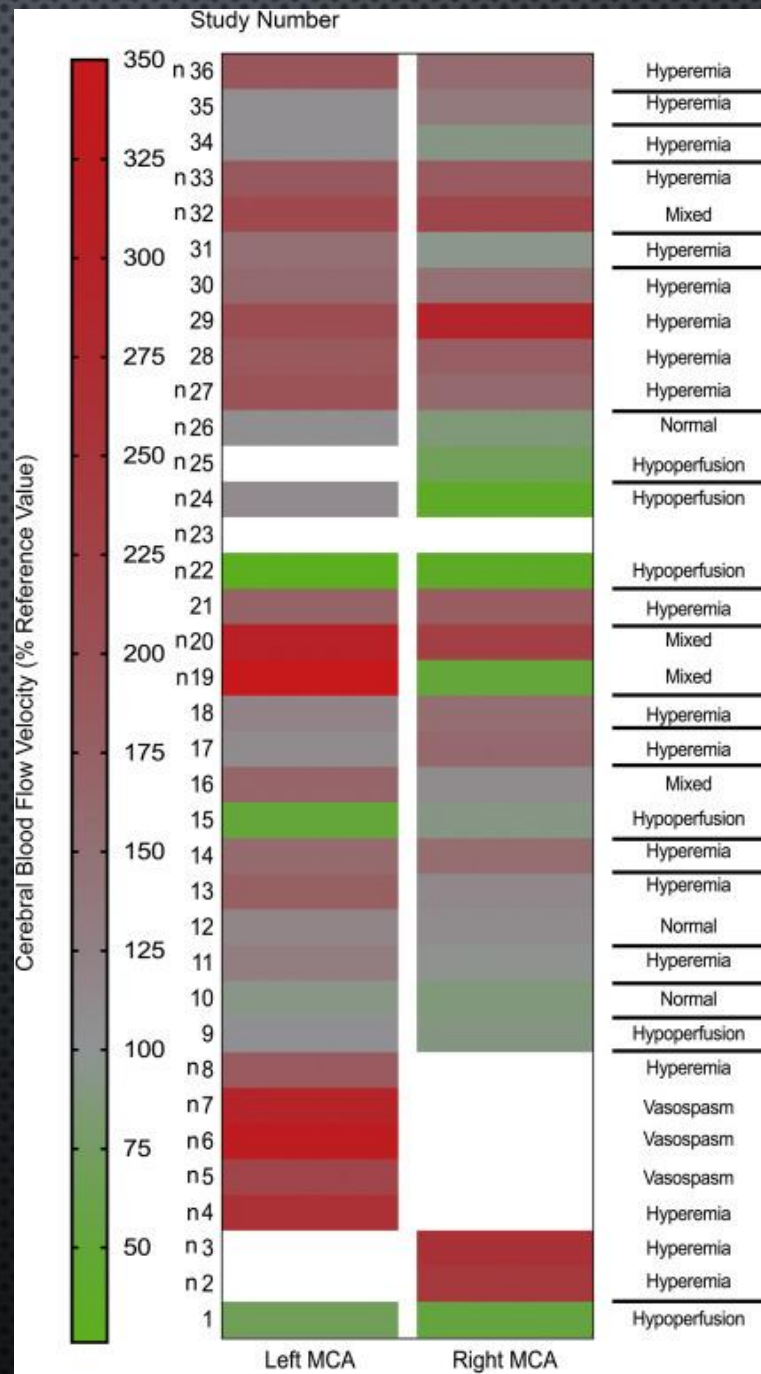
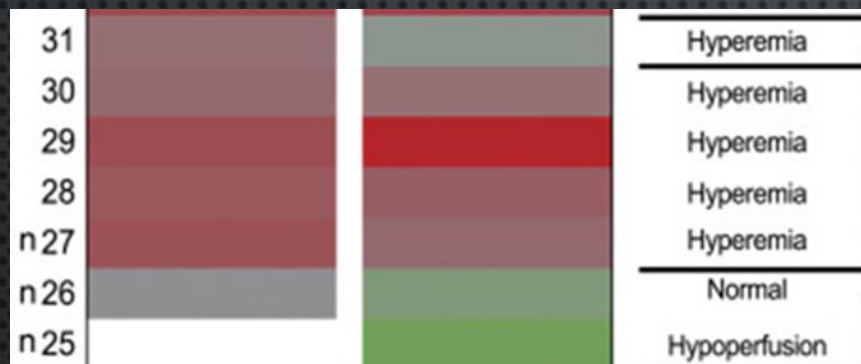
<b>8</b>	<b>112</b>	<b>58.0</b>	<b>0.69</b>	<b>0.48</b>	<b>1.93</b>	<b>114</b>
an	Peak	EDV	PI	RI	S/D	HR





**THANK YOU!!!!**



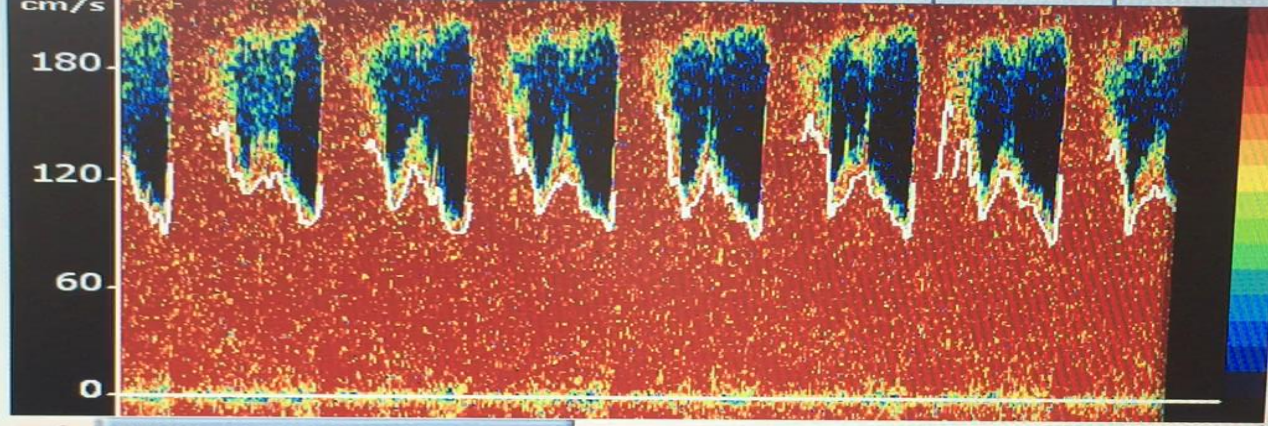




Patient Name: **Misehona, Ketaiia** Patient ID: **005** Activated: **N/A**

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<b>95.1</b>	<b>163</b>	<b>91.5</b>	<b>0.75</b>	<b>0.43</b>	<b>1.78</b>	<b>116</b>
Mean	Peak	EDV	PI	RI	S/D	HR



▲	51	1	51%	10	231	5%		Upper	2 pw
▼	Depth	Gain	Power	Sample	Scale	Zero	Volume	Env	Probe

Patient Setup Database

