

Cerebrovascular Reserve Testing – A case with adequate reserve

PHYSICIAN'S CONCERNS?

An active, 55 year old man presents with a left internal carotid artery occlusion and recurring symptoms. He has been referred by his primary care physician.

HOW DID NOVA HELP?

Quantitative flow measurements pre and post diamox are used to evaluate cerebrovascular reserve and rule out cerebral ischemia as the origin of symptoms.

Patient History

- ❖ 55 year old right handed man
- ❖ Left internal carotid artery occlusion, likely dissecting in origin
- ❖ Initial presentation 13 months ago when he had an episode of left facial hypersensitivity, headaches and droopy eyelid; all consistent with Horner's syndrome.
- ❖ Past medical history relevant for hypertension and hyperlipidemia
- ❖ Family history of coronary artery disease (father died at 49)
- ❖ High level of cognitive function; employed as an engineer
- ❖ Residual Horner's syndrome. Currently, he is not symptomatic for TIA or stroke

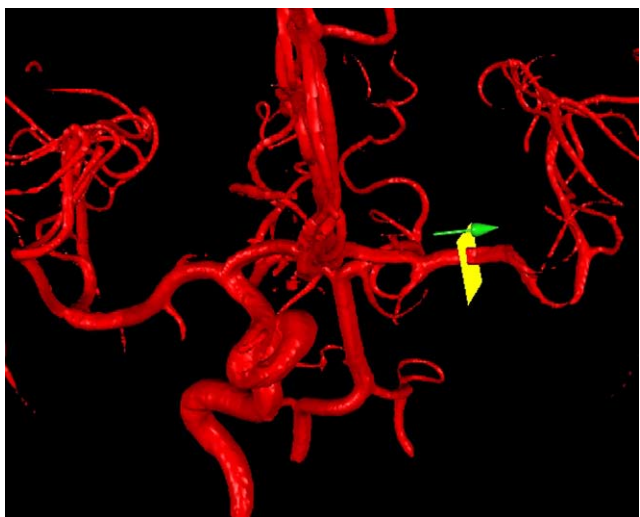


Figure 1: NOVA 3D with slice plane on left middle cerebral artery

NOVA Report

- Flow measurements in the major cerebral vessels were taken at baseline and following administration of the vasodilator, diamox.
- Blood flow increased in response to diamox in all measured vessels.
- The flows in the L and R MCAs increased by 36% and 52% respectively, demonstrating good cerebrovascular reserve. (Figure 2)

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NOVA Diamox Map

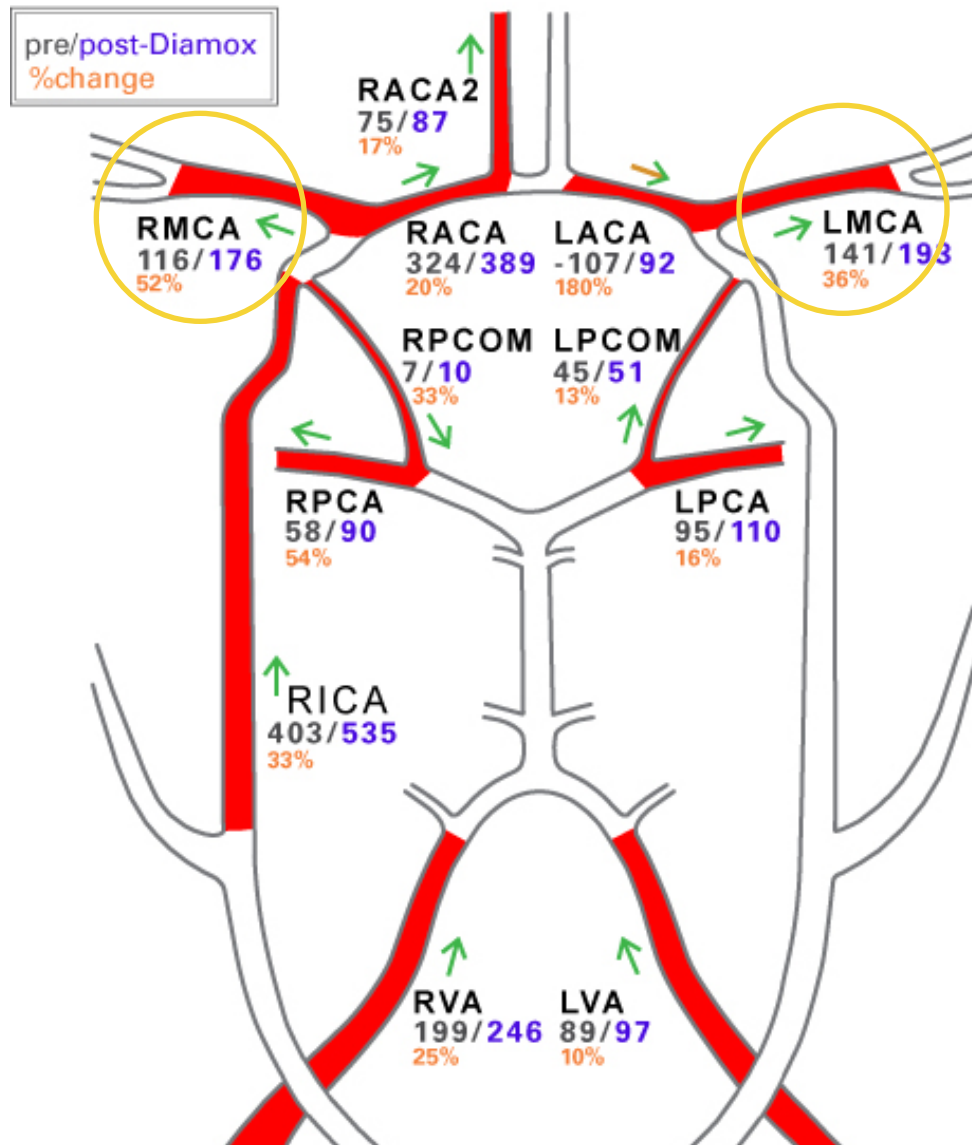


Figure 2: NOVA Vessel Map

Conclusions

- NOVA qMRA quantifies the collateral flow supply
- In response to a diamox challenge, the patient demonstrates good cerebrovascular reserve
- Patient is adequately compensated and does not need flow augmentation