

CTA head-neck

Imaging required for imaging biobank			Remarks
All series and reconstructions: Baseline AND follow-up (24 hours)			<b>obligatory</b>
Data acquisition	Parameters		
Scan range	cranial vertex (includes entire sagittal sinus) – just below aortic arch		<b>obligatory</b>
Scan direction	cranial - caudal		<b>preferred</b>
Scan type	spiral		<b>preferred</b>
Collimation	number of detector rows available $\times \leq 1,0$ mm		<b>preferred</b>
Rotation time	cooperative patient	$\geq 0,5$ seconds	<b>preferred</b>
	moving patient	$\leq 0,4$ seconds	<b>preferred</b>
Pitch	cooperative patient	0,8-0,9	<b>preferred</b>
	moving patient	1,2-1,7	<b>preferred</b>
kVp	automated tube current selection for vascular exam type		1 <sup>st</sup> choice
	fixed kVp, as close to 100 kVp as possible		2 <sup>nd</sup> choice
mAs	local practice		
CTDI <sub>vol</sub> indication (prior to kV/mA modulation)	16 cm	12-26 mGy (iterative)	1 <sup>st</sup> choice
		16-32 mGy (filtered back projection)	2 <sup>nd</sup> choice
	32 cm	6-13 mGy (iterative)	1 <sup>st</sup> choice
		8-16 mGy (filtered back projection)	2 <sup>nd</sup> choice
Contrast media	flux (administered iodine in grams / second)	1,3-1,8 *	<b>obligatory</b>
	maximum amount	90 mL	<b>obligatory</b>
	injection site	right cubital fossa	<b>preferred</b>
NaCl flush bolus amount	$\geq 40$ mL		<b>obligatory</b>
Scan delay	timed with contrast bolus tracking		<b>obligatory</b>
Image reconstruction			
Directions	axial		<b>obligatory</b>
Brain kernel	local practice		
Reconstruction	slice width/increment	Field of view	
1. Extracranial arteries	$\leq 1,0$ mm / $\leq 0,6$ mm	small to fit carotids and vertebral arteries	<b>obligatory</b>
2. Intracranial arteries	$\leq 0,75$ mm / $\leq 0,4$ mm	small to fit intracranial arteries	<b>obligatory</b>

\* Example contrast injection:

Contrast media Visipaque: 320mg iodine / mL = 0,320 g iodine / mL.

Example calculation flowrate at flux 1,3 is:  $1,3 / 0,320 = 4,0$  mL / second.

Considerations:

A higher iodine flux is preferred over a lower iodine flux, but it should be feasible over i.v. canula in the individual patient.

With faster scans/scanners injection protocol tends to shift to lower volumes due to shorter scan time, but a resulting drop in peak Hu needs to be compensated with higher flux.

Low kVp (< 100) can tolerate lower iodine flux compared to high kVp ( $\geq 100$ ) scans.