BRAIN MAGNETIC RESONANCE VENOGRAPHY (MRV) 3T R5.6

INSTRUCTIONS AND PATIENT PREPARATION

Instructions	• Sequences are in addition to the Routine Adult Brain protocol. For hyperacute patient, assess for penumbra • No patient preparation • 20- to 22-gauge IV access preferred • Power injection preferred
Position	Supine, head first
Coil	SENSE-Head-8 channel coil preferred
Landmark	Glabella

CONTRAST AGENT PARAMETERS

Contrast Agent	Dose	Injection Rate	Dose Timing Method and Scan Delay
Gadopiclenol (VUEWAY)	0.05 mmol/kg	1-1.5 mL/sec	Hand bolus or power injection
Saline Flush	20 mL	1-1.5 mL/sec	Hand bolus or power injection
Comments	Report agent administered and dose		

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MR Gadopiclenol (VUEWAY®) Protocol for Philips Healthcare Systems
Central Nervous System

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INFO PAGE

Scan Description	Survey	AXIAL TOF Venogram Pre	CORONAL TOF Venogram Pre	AXIAL TOF Venogram +Gd	AXIAL MPRAGE Venogram +Gd
Total scan duration	00:31.4	02:06.2	02:06.2	02:06.2	04:13.8
Rel. SNR	1	0	0	0	0.4
Act. TR/TE(ms)	11 / 4.6	23 / 3.5	23 / 3.5	23 / 3.5	12 / 6.1
ACQ matrix M x P	268 x 128	260 x 260	260 x 260	260 x 260	420 x 420
ACQ voxel MPS (mm)	0.97 / 2.03 / 10.0	0.85 / 0.85 / 2.50	0.85 / 0.85 / 2.50	0.85 / 0.85 / 2.50	0.57 / 0.57 / 1.20
REC voxel MPS (mm)	0.90 / 0.90 / 10.0	0.42 / 0.42 / 2.50	0.42 / 0.42 / 2.50	0.42 / 0.42 / 2.50	0.56 / 0.56 / 1.20
Scan percentage (%)	48	100	100	100	100
Act. slice gap (mm)	—	—	—	—	0
TFE shots	2	—	—	—	112
TFE dur. shot / acq(ms)	1162.5 / 704.0	—	—	—	1756.2 / 1691.1
TFE shot interval (ms)	1162.5	—	—	—	—
Min. TI delay	397.4	—	—	—	897.511475
Act. WFS (pix) / BW (Hz)	3.101 / 140.1	3.198 / 135.8	3.198 / 135.8	3.198 / 135.8	3.969 / 109.4
Min. WFS (pix) / Max. BW (Hz)	0.587 / 740.3	0.542 / 801.3	0.542 / 801.3	0.542 / 801.3	0.919 / 472.4
Min. TR/TE(ms)	9.4 / 3.7	23 / 3.3	23 / 3.3	23 / 3.3	—
Local torso SAR	< 12 %	< 62 %	< 62 %	< 62 %	< 8 %
Whole body SAR / level	< 0.4 W/kg / normal	< 2.0 W/kg / normal	< 2.0 W/kg / normal	< 2.0 W/kg / normal	< 0.3 W/kg / normal
SED	0.0 kJ/kg	< 0.3 kJ/kg	< 0.3 kJ/kg	< 0.3 kJ/kg	< 0.1 kJ/kg
Coil Power	0%	0%	0%	0%	0%
Max B1+rms	0.79 uT	1.80 uT	1.80 uT	1.80 uT	0.64 uT
PNS / level	53 % / normal	62 % / normal	90 % / 1st level	62 % / normal	66 % / normal
dB/dt	46.6 T/s	87.0 T/s	85.0 T/s	87.0 T/s	63.9 T/s
Sound Pressure Level (dB)	10.4	14.1	13.8	14.1	8.9
Boil-off (hPa/h)	—	3.6	5.4	3.6	3.6
Max Boil-off (hPa/h)	—	3.6	5.4	3.6	4.8
Boil-off (hPa)	—	0.1	0.2	0.1	0.3

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GEOMETRY

Scan Description	Survey	AXIAL TOF Venogram Pre	CORONAL TOF Venogram Pre	AXIAL TOF Venogram +Gd	AXIAL MPRAGE Venogram +Gd
Nucleus	—	H1	H1	H1	H1
SmartSelect	—	yes	yes	yes	yes
Coil 1 (exclude)	—	None	None	None	None
Uniformity	Classic	CLEAR	CLEAR	CLEAR	CLEAR
FOV AP (mm)	260	220	151	220	240
FOV FH (mm)	260	151	220	151	180
FOV RL (mm)	—	220	220	220	240
stack RL (mm)	50	—	—	—	—
ACQ voxel size AP (mm)	2	0.9	—	0.9	0.6
ACQ voxel size FH (mm)	1	—	0.9	—	1.2
ACQ voxel size RL (mm)	—	0.8	0.8	0.8	0.6
Slice thickness (mm)	10	2.5	2.5	2.5	—
Recon voxel size AP (mm)	0.9	0.4	—	0.4	0.6
Recon voxel size FH (mm)	0.9	—	0.4	—	1.2
Recon voxel size RL (mm)	—	0.4	0.4	0.4	0.6
Fold-over suppression	no	no	no	no	no
Slice oversampling	—	—	—	—	user defined
oversample factor	—	—	—	—	1.5
ENCASE enable	—	—	—	—	no
Reconstruction matrix	288	528	528	528	432
SENSE	no	no	no	no	no
CS-SENSE	—	yes	yes	yes	yes
reduction	—	5	5	5	5
denoising	—	system default	system default	system default	system default
k-t Acceleration	—	no	no	no	no
Stacks	3	1	1	1	1
current	A	—	—	—	—
type	parallel	parallel	parallel	parallel	—
slices	3	100	100	100	150
slice gap	user defined	user defined	user defined	user defined	—
gap (mm)	10	-1	-1	-1	—
slice orientation	sagittal	transverse	coronal	transverse	transverse
fold-over direction	AP	RL	RL	RL	RL
fat shift direction	F	P	F	P	P
Slice scan order	default	FH	PA	FH	—
Stack scan order	ascend	—	—	—	—
Stack sort order	no	—	—	—	—
Multi-chunk	—	—	—	—	no
Large table movement	—	no	no	no	no
Plan Align	no	no	no	no	no

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REST slabs	0	1	1	1	0
type	—	parallel	perpendicular	parallel	—
thickness (mm)	—	20	20	20	—
position	—	feet	left	feet	—
gap	—	user defined	100	user defined	—
(mm)	—	10	90	10	—
power	—	1	1	1	—
Interactive positioning	—	no	no	no	no
Allow table movement	—	no	no	no	no
Patient position	—	head first	head first	head first	head first
Patient body position	—	head first	head first	head first	head first
Patient orientation	—	supine	supine	supine	supine
Patient body orientation	—	supine	supine	supine	supine

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CONTRAST

Scan Description	Survey	AXIALTOF VenogramPre	CORONALTOF VenogramPre	AXIALTOF Venogram+Gd	AXIALMPRAGE Venogram +Gd
Scan type	—	Imaging	Imaging	Imaging	Imaging
Scan mode	M2D	M2D	M2D	M2D	3D
technique	FFE	FFE	FFE	FFE	FFE
3D non-selective	—	—	—	—	no
Contrast enhancement	T1	T1	T1	T1	T1
Acquisition mode	—	cartesian	cartesian	cartesian	cartesian
Fast Imaging mode	TFE	none	none	none	TFE
shot mode	multishot	—	—	—	multishot
TFE factor	64	—	—	—	138
startup echoes	default	—	—	—	default
shot interval	shortest	—	—	—	user defined
(ms)	—	—	—	—	2250
profile order	linear	—	—	—	linear
turbo direction	—	—	—	—	Z
Echoes	1	1	1	1	1
partial echo	no	yes	yes	yes	no
shifted echo	—	no	no	no	no
TE	in-phase	out-phase	out-phase	out-phase	shortest
(ms)	4.6	3.5	3.5	3.5	—
Flip angle (deg)	15	60	60	60	9
TR	user defined	shortest	shortest	shortest	shortest
(ms)	11	—	—	—	—
Halfscan	no	no	no	no	no
Water-fat shift	user defined	maximum	maximum	maximum	maximum
(pixels)	3.5	—	—	—	—
RF Shims	fixed	adaptive	adaptive	adaptive	fixed
Shim	default	default	default	default	default
mDIXON	no	no	no	no	no
Fat suppression	no	no	no	no	no
Water suppression	no	no	no	no	no
TFE prepulse	invert	—	—	—	invert
slice selection	no	—	—	—	no
delay	user defined	—	—	—	user defined
(ms)	800	—	—	—	900
PSIR	—	—	—	—	no
MTC	no	no	no	no	no
T2prep	—	—	—	—	no
Custom prepulse	—	no	no	no	no
MDME	—	no	no	no	no
Diffusion mode	—	no	no	no	no
T1 mapping	—	no	no	no	no
Transmit channels	—	both	both	both	both

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SAR mode	high	high	high	high	high
B1 mode	default	user defined	user defined	user defined	default
amplitude (uT)	—	11.5	11.5	11.5	—
SAR allow first level	yes	no	no	no	yes
Patient pregnancy	—	yes	yes	yes	no
Patient WB SAR [W/kg]	—	—	—	—	—
Patient Head SAR [W/kg]	—	—	—	—	—
Patient max. dB/dt [T/s]	—	—	—	—	—
Max slewrate [T/m/s]	—	—	—	—	—
Max. B1+rms [uT]	—	—	—	—	—
PNS mode	low	high	high	high	high
Gradient mode	default	maximum	maximum	maximum	default
SofTone mode	no	no	no	no	no

MOTION

Scan Description	Survey	AXIAL TOF Venogram Pre	CORONAL TOF Venogram Pre	AXIAL TOF Venogram +Gd	AXIAL MPRAGE Venogram +Gd
Cardiac synchronization	no	no	no	no	no
Heart rate > 250 bpm	—	no	no	no	no
Respiratory compensation	no	no	no	no	no
Navigator respiratory comp	—	no	no	no	no
Flow compensation	no	yes	yes	yes	no
fMRI echo stabilisation	—	no	no	no	no
Motion smoothing	—	—	—	—	no
NSA	1	1	1	1	1
MRE enable	no	no	no	no	no

DYNAMIC ANGIO

Scan Description	Survey	AXIAL TOF Venogram Pre	CORONAL TOF Venogram Pre	AXIAL TOF Venogram +Gd	AXIAL MPRAGE Venogram +Gd
Angio / Contrast enh.	no	inflow	inflow	inflow	no
Quantitative flow	—	no	no	no	no
CENTRA	—	—	—	—	no
Manual start	no	no	no	no	no
Dynamic study	no	no	no	no	no
Arterial Spin labeling	—	no	no	no	no

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POST PROCESSING

Scan Description	Survey	AXIAL TOF Venogram Pre	CORONAL TOF Venogram Pre	AXIAL TOF Venogram +Gd	AXIAL MPRAGE Venogram +Gd
Preparation phases	auto	auto	auto	auto	auto
Interactive F0	no	no	no	no	no
Quick Survey	default	default	default	default	default
SmartPlan survey	—	no	no	no	no
B0 field map	—	no	no	no	no
B1 field map	—	no	no	no	no
MIP/MPR	no	MIP	MIP	MIP	no
protocol	—	compose	compose	compose	—
SWIp	—	no	no	no	no
Images	M, no, no, no	M, (3) no	M, (3) no	M, (3) no	M, (3) no
Autoview image	M	M	M	M	M
Calculated images	no, no, no, no	(4) no	(4) no	(4) no	(4) no
Reference tissue	White matter	Grey matter	Grey matter	Grey matter	White matter
Recon compression	No	No	No	No	No
Preset window contrast	soft	soft	soft	soft	soft
Reconstruction mode	immediate	real time	real time	real time	immediate
Save raw data	no	no	no	no	no
Hardcopy protocol	no	no	no	no	no
Image filter	system default	system default	system default	system default	system default
Uniformity correction	no	no	no	no	no
Geometry correction	default	default	default	default	default
Elliptical k-space shutter	—	—	—	—	default
Free rotatable	no	no	no	no	no

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