

## ON-LINE APPENDIX: DOCUMENTATION OF SEARCH STRATEGIES

### Karolinska University Library search consultation group

Date: January 2018

Topic/research question: pediatric patients with intracranial tumors and arterial-spin labeling

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Librarian: Klas Moberg

Data bases:

- 1) Medline (Ovid)
- 2) EMBASE (www.embase.com)
- 3) Web of Science Core Collection (Clarivate Analytics)
- 4) Cochrane Library (Wiley)

Total number of hits:

Before deduplication: 105

After deduplication: 61.

On-line Table 1: Characteristics of included studies

| Authors/Year                             | City/Country                         | Years of Patient Inclusion | Patients (No.) | Mean/Median Age (Range) | WHO Classification | Tesla | ASL Method (pASL/pCASL) | Perfusion Parameters (Cutoff)                              |
|------------------------------------------|--------------------------------------|----------------------------|----------------|-------------------------|--------------------|-------|-------------------------|------------------------------------------------------------|
| Dangouloff-Ros et al, 2016 <sup>17</sup> | Paris, France                        | 2011–2015                  | 129            | 6 yr (2 mo–18 yr)       | 2007               | 1.5   | 3D-pCASL                | rCBFmax (0.95)/aCBFmax (50)                                |
| Dangouloff-Ros et al, 2015 <sup>27</sup> | Paris, France                        | 2011–2014                  | 13             | 1.5 yr (7 mo–16 yr)     | 2007               | 1.5   | 3D-pCASL                | rCBFmax (1.9 <sup>a</sup> )/aCBFmax (141.5 <sup>a</sup> )  |
| Kikuchi et al, 2017 <sup>33</sup>        | Fukuoka, Japan                       | 2013–2014                  | 19             | 6 yr (2 mo–12 yr)       | 2016               | 3     | 3D-pCASL                | rCBFmax (0.72 <sup>a</sup> )/aCBFmax (27.05 <sup>a</sup> ) |
| Hales et al, 2013 <sup>28</sup>          | London, UK                           | NA                         | 8              | 11.5 yr                 | WHO NOS            | 1.5   | 3D-pCASL                | NA (NA)/aCBFmean (105.5 <sup>a</sup> )                     |
| Liu et al, 2015 <sup>29</sup>            | Taoyuan, Taiwan                      | NA                         | 14             | NA (5 mo–14 yr)         | NA                 | 3     | 3D-pCASL                | NA (NA)/aCBFmean (56.45 <sup>a</sup> )                     |
| Morana et al, 2017 <sup>20</sup>         | Genoa, Italy                         | NA                         | 26             | 9.5 yr (2–17 yr)        | 2016/2007          | 1.5   | pASL                    | rCBFmax (1.04)/NA (NA)                                     |
| Vidyasagar et al, 2016 <sup>31</sup>     | Melbourne, Australia; Manchester, UK | NA                         | 23             | 8 yr (2–20 yr)          | NA                 | 3     | pASL with VC            | rCBF (NA)/aCBF VC (NA)                                     |
| Yeom et al, 2014 <sup>32</sup>           | California, United States            | NA                         | 54             | 7.5 yr (2–18 yr)        | 2007               | 3     | 3D-pCASL                | rCBFmax (NA)/NA (NA)                                       |

**Note:**—NA indicates not available; pASL, pulsed arterial spin-labeling; pCASL, pseudocontinuous arterial spin-labeling; max, maximum; NOS, not otherwise specified; VC, vascular crushing.  
<sup>a</sup> Calculated from original data.

On-line Table 2. Study characteristics

| Authors                                         | Year | ASL Method<br>(pASL/pCASL and<br>Specifications) | Partitions (No.) | Flip Angle           | TR (ms) | TE (ms) |
|-------------------------------------------------|------|--------------------------------------------------|------------------|----------------------|---------|---------|
| Dangouloff-Ros et al (full study) <sup>17</sup> | 2016 | 3D-pCASL                                         | 80               | 155°                 | 4428    | 10.5    |
| D-R (subgroup hemispheric tumors)               | 2016 | 3D-pCASL                                         | 81               | 156°                 | 4428    | 10.6    |
| D-R (subgroup thalamic tumors)                  | 2016 | 3D-pCASL                                         | 82               | 157°                 | 4428    | 10.7    |
| D-R (subgroup posterior fossa tumors)           | 2016 | 3D-pCASL                                         | 83               | 158°                 | 4428    | 10.8    |
| Dangouloff-Ros et al <sup>27</sup>              | 2015 | 3D-pCASL                                         | 80               | 155°                 | 4428    | 10.5    |
| Hales et al <sup>28</sup>                       | 2013 | 3D-pCASL                                         | NA               | NA                   | 3000    | 31.6    |
| Kikuchi et al <sup>33</sup>                     | 2017 | 3D-pCASL                                         | NA               | NA                   | 4200    | 8.6     |
| Liu et al <sup>29</sup>                         | 2015 | 3D-pCASL                                         | NA               | 2°, 5°, 10°, and 20° | 4463    | 10.2    |
| Morana et al <sup>30</sup>                      | 2017 | pASL                                             | NA               | 40°                  | 4000    | 25      |
| Vidyasagar et al <sup>31</sup>                  | 2016 | pASL with VC                                     | NA               | 40°                  | 4000    | 12      |
| Yeom et al <sup>32</sup>                        | 2014 | 3D-pCASL                                         | NA               | NA                   | 4632    | 10.5    |

**Note:**—D-R indicates Dangouloff-Ros; NA, not available; pASL, pulsed arterial spin-labelling; pCASL, pseudocontinuous arterial spin-labelling; VC, vascular crushing.

On-line Table 3: Study characteristics (continued)

| Authors                                         | Year | Postlabeling<br>Delay (ms) | Postprocessing<br>ASL (Model Fitting)                                              | Acquisition<br>Time (sec) | MR Imaging Model<br>and Manufacturer                   |
|-------------------------------------------------|------|----------------------------|------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------|
| Dangouloff-Ros et al (full study) <sup>17</sup> | 2016 | 1025                       | NA                                                                                 | 223                       | Signa HD (GE Healthcare, Milwaukee, Wisconsin)         |
| D-R (subgroup hemispheric tumors)               | 2016 | 1026                       | NA                                                                                 | 224                       | Signa HD (GE Healthcare)                               |
| D-R (subgroup thalamic tumors)                  | 2016 | 1027                       | NA                                                                                 | 225                       | Signa HD (GE Healthcare)                               |
| D-R (subgroup posterior fossa tumors)           | 2016 | 1028                       | NA                                                                                 | 226                       | Signa HD (GE Healthcare)                               |
| Dangouloff-Ros et al <sup>27</sup>              | 2015 | 1025                       | NA                                                                                 | 223                       | Signa HD (GE Healthcare)                               |
| Hales et al <sup>28</sup>                       | 2013 | NA                         | Model fitting with iterative Nelder-Mead nonlinear least-squares algorithm         | 576                       | Magnetom Avanto (Siemens, Erlangen, Germany)           |
| Kikuchi et al <sup>33</sup>                     | 2017 | 1525                       | NA                                                                                 | 277                       | Achieva TX (Philips Healthcare, Best, the Netherlands) |
| Liu et al <sup>29</sup>                         | 2015 | 1525                       | NA                                                                                 | 259                       | Discovery 750 (GE Healthcare)                          |
| Morana et al <sup>30</sup>                      | 2017 | 1450–1800                  | NA                                                                                 | 245                       | Intera Achieva (Philips Healthcare)                    |
| Vidyasagar et al <sup>31</sup>                  | 2016 | 300–2890                   | Vascular crushing gradients with velocity-encoding; single-blood-compartment model | 240                       | Achieva TX (Philips Healthcare)                        |
| Yeom et al <sup>32</sup>                        | 2014 | 1500                       | Automated reconstruction script                                                    | 300                       | Discovery 750 (GE Healthcare)                          |

**Note:**—NA indicates not available; D-R, Dangouloff-Ros.

On-line Table 4: Study characteristics (continued)

| Authors                                         | Year | Anesthesia/Sedative                     | Year | No.<br>Channel<br>Head Coils | Tumor Types                                                                                                                                |
|-------------------------------------------------|------|-----------------------------------------|------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Dangouloff-Ros et al (full study) <sup>17</sup> | 2016 | N                                       | 2016 | 12                           | See subgroups below                                                                                                                        |
| D-R (subgroup hemispheric tumors)               | 2016 | N                                       | 2016 | 12                           | Astrocytic, ependymal, neuronal/mixed neuronal-glial, embryonal                                                                            |
| D-R (subgroup thalamic tumors)                  | 2016 | N                                       | 2016 | 12                           | Astrocytic                                                                                                                                 |
| D-R (subgroup posterior fossa tumors)           | 2016 | N                                       | 2016 | 12                           | Astrocytic, ependymal, neuronal/mixed neuronal-glial, embryonal, hemangioblastoma                                                          |
| Dangouloff-Ros et al <sup>27</sup>              | 2015 | NA                                      | 2015 | 12                           | Choroid plexus                                                                                                                             |
| Hales et al <sup>28</sup>                       | 2013 | Y: thiamylal sodium or triclofos sodium | 2013 | 12                           | Astrocytic, ependymal, choroid plexus, glioneural, medulloblastoma, embryonal, craniopharyngioma                                           |
| Kikuchi et al <sup>33</sup>                     | 2017 | NA                                      | 2017 | 8                            | Astrocytic, neuronal/mixed neuronal-glial                                                                                                  |
| Liu et al <sup>29</sup>                         | 2015 | 2/14 IV midazolam; 0 anesthesia         | 2015 | 8                            | Astrocytic, ependymal, neuronal/mixed neuronal-glial, embryonal, choroid plexus, craniopharyngioma                                         |
| Morana et al <sup>30</sup>                      | 2017 | NA                                      | 2017 | 8                            | Astrocytic                                                                                                                                 |
| Vidyasagar et al <sup>31</sup>                  | 2016 | Mixed depending on age                  | 2016 | NA                           | Astrocytic, choroid plexus, embryonal, pineal region                                                                                       |
| Yeom et al <sup>32</sup>                        | 2014 | NA                                      | 2014 | 8                            | Astrocytic, embryonal, primary malignant melanoma, ependymal, choroid plexus, neuronal/mixed neuronal-glial, craniopharyngioma, meningioma |

**Note:**—Y indicates yes; N, no; D-R, Dangouloff-Ros; NA, not available.

On-line Table 5: Study characteristics (continued)

| Authors                                         | Year | Retrospective or Prospective | ROI Technique                                       | Reference Region                                                                           |
|-------------------------------------------------|------|------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------|
| Dangouloff-Ros et al (full study) <sup>17</sup> | 2016 | R                            | Manual 2D 50-mm <sup>2</sup> ROI in maximal CBF     | GM in cerebellum (posterior fossa tumors)/temporal lobe (supratentorial tumors)            |
| D-R (subgroup hemispheric tumors)               | 2016 | R                            | Manual 2D 50-mm <sup>2</sup> ROI in maximal CBF     | Temporal lobe (supratentorial tumors)                                                      |
| D-R (subgroup thalamic tumors)                  | 2016 | R                            | Manual 2D 50-mm <sup>2</sup> ROI in maximal CBF     | Temporal lobe (supratentorial tumors)                                                      |
| D-R (subgroup posterior fossa tumors)           | 2016 | R                            | Manual 2D 50-mm <sup>2</sup> ROI in maximal CBF     | GM in cerebellum (posterior fossa tumors)                                                  |
| Dangouloff-Ros et al <sup>27</sup>              | 2015 | R                            | Manual ROI in maximal lesion CBF                    | CLNA cortical GM                                                                           |
| Hales et al <sup>28</sup>                       | 2013 | R                            | Manual ROI in maximal lesion CBF                    | CL GM in thalamus                                                                          |
| Kikuchi et al <sup>33</sup>                     | 2017 | NA                           | Manual whole-tumor ROI guided by T2-weighted images | CL equal ROI for lateral tumors; for midline tumors, ROI in GM lateral to the tumor region |
| Liu et al <sup>29</sup>                         | 2015 | NA                           | Manual ROI of gross tumor volume                    | NA                                                                                         |
| Morana et al <sup>30</sup>                      | 2017 | R                            | Manual 8-mm diameter ROI in CBF max guided by PET   | 50 mm <sup>2</sup> in CL NAWM                                                              |
| Vidyasagar et al <sup>31</sup>                  | 2016 | NA                           | Volume ROI in contrast-enhancing regions            | CL hemisphere for non-midline tumors or “healthy” tissue areas close to the tumor area     |
| Yeom et al <sup>32</sup>                        | 2014 | R                            | Manual delineation of solid tumor and maximum CBF   | 150-mm <sup>2</sup> ROI in the CL GM                                                       |

**Note:**—CLNA indicates contralateral normal-appearing; CL, contralateral; R, retrospective; NAWM, normal-appearing white matter.

On-line Table 6: Medline

| Interface: Ovid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Field Labels                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Date of Search: January 8, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ·exp/ = exploded MeSH term                       |
| Number of hits: 39                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ·/ = non exploded MeSH term                      |
| Comment: In Ovid, $\geq 2$ words are automatically searched as phrases; ie, no quotation marks are needed                                                                                                                                                                                                                                                                                                                                                                                                                | ·ti,ab,kf. = title, abstract and author keywords |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ·adjx = within x words, regardless of order      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ·* = truncation of word for alternate endings    |
| 1) exp Infant/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                  |
| 2) exp Child/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |
| 3) Adolescent/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                  |
| 4) (Infan* or newborn* or new-born* or perinat* or neonat* or baby* or babies or toddler* or minors* or boy or boys or boyfriend or boyhood or girl* or kid or kids or child* or adolescen* or juvenil* or youth* or teen* or under*age* or pubescen* or pubert* or prepubescen* or pediatric* or paediatric* or peadiatric* or school* or kindergar* or preschool* or prematur* or postmatur* or preterm*).ti,ab,kf.                                                                                                    |                                                  |
| 5) or/1-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |
| 6) exp Brain Neoplasms/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                  |
| 7) exp Glioma/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                  |
| 8) Craniopharyngioma/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                  |
| 9) ((brain* or cerebral or cerebro* or cerebel* or intracranial or intra-cranial or intraventricular or ventricular or infratentorial or supratentorial or hypothalam* or cranial or astrocytic or posterior fossa or choroid plexus or glial or pineal or pituitary or ependymal or medullary or mesenceph* or midbrain or pontine or embryonal or mixed neuro*) adj2 (tumor* or tumor* or cancer* or neoplas* or carcinoma* or metasta* or sarcoma* or neuroblastoma* or papilloma* or sarcoma* or adenoma*).ti,ab,kf. |                                                  |
| 10) (glioma* or glioblastoma* or ganglioglioma* or gliosarcoma* or meningioma* or astrocytoma* or ependymoma* or medulloblastoma* or oligodendroglioma* or oligoastrocytoma* or hemangioblastoma* or pinealoma* or pinealocytoma* or pineoblastoma* or pinealoblastoma* or pineocytoma* or xanthoastrocytoma* or medulloepithelioma* or subependymoma* or astroblastoma* or ganglioglioma* or medulloblastoma* or craniopharyngioma*).ti,ab,kf.                                                                          |                                                  |
| 11) or/6-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                  |
| 12) exp Spin Labels/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                  |
| 13) arterial spin label*.ti,ab,kf.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                  |
| 14) (ASL or pCASL or 3D-pCASL or 3D-ASL).ti,ab,kf.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                  |
| 15) or/12-14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                  |
| 16) 5 and 11 and 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                  |
| 17) remove duplicates from 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |

On-line Table 7: EMBASE

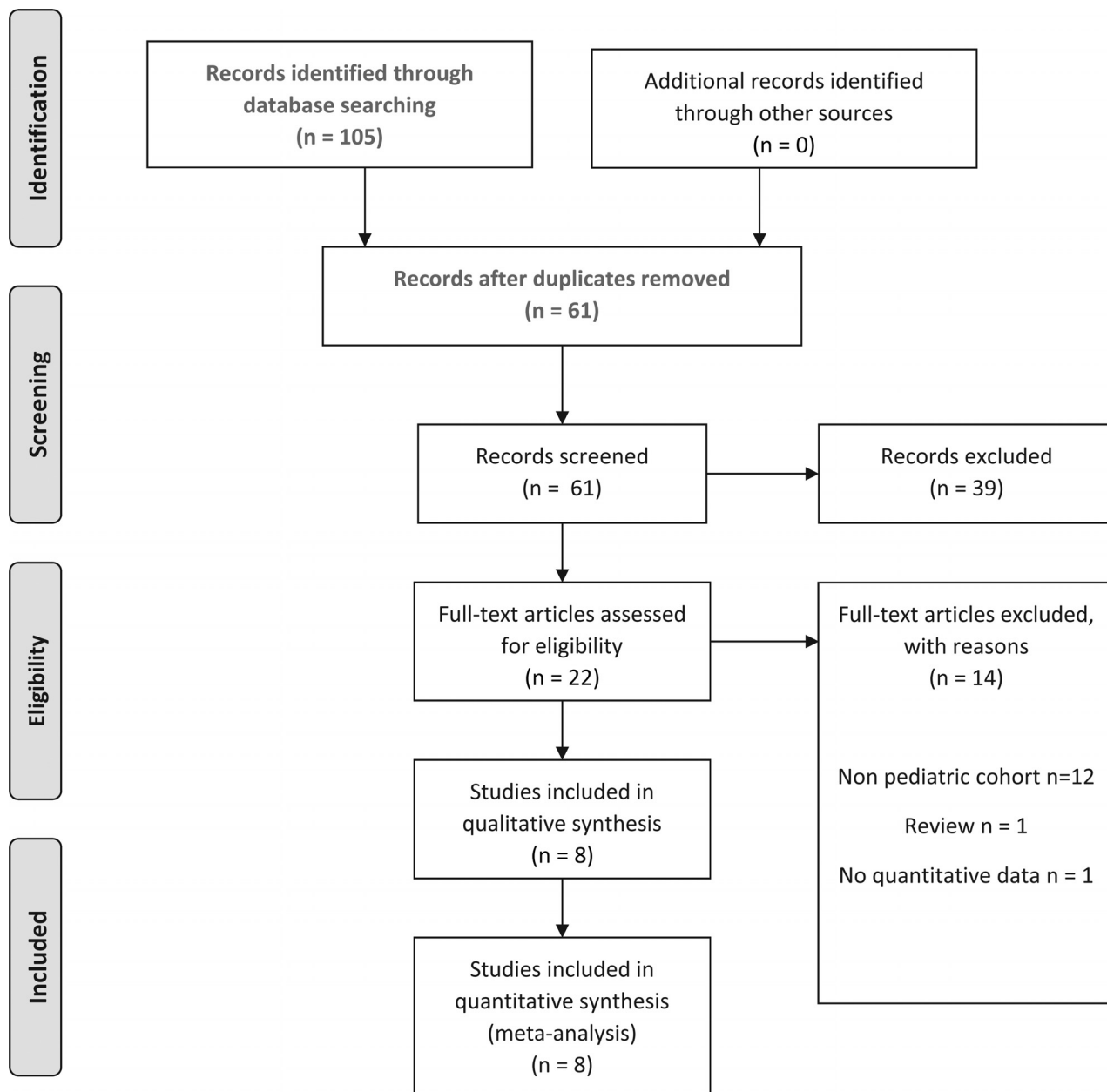
| Interface: Embase.Com                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Field Labels                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Date of Search: January 8, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | •/exp = exploded Emtree term                   |
| Number of hits: 46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •/de = non exploded Emtree term                |
| Comment: Emtree is the controlled vocabulary in Embase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | •ti,ab = title and abstract                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | • NEAR/x = within x words, regardless of order |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | • * = truncation of word for alternate endings |
| 1) 'juvenile'/exp<br>2) infan*:ti,ab OR newborn*:ti,ab OR 'new-born*':ti,ab OR perinat*:ti,ab OR neonat*:ti,ab OR baby*:ti,ab OR babies:ti,ab OR toddler*:ti,ab OR minors*:ti,ab OR boy:ti,ab OR boys:ti,ab OR boyfriend:ti,ab OR boyhood:ti,ab OR girl*:ti,ab OR kid:ti,ab OR kids:ti,ab OR child*:ti,ab OR adolescen*:ti,ab OR juvenil*:ti,ab OR youth*:ti,ab OR teen*:ti,ab OR under*age*:ti,ab OR pubescen*:ti,ab OR pubert*:ti,ab OR prepubescen*:ti,ab OR pediatric*:ti,ab OR paediatric*:ti,ab OR peadiatric*:ti,ab OR school*:ti,ab OR kindergar*:ti,ab OR preschool*:ti,ab OR prematur*:ti,ab OR postmatur*:ti,ab OR preterm*:ti,ab<br>3) 1 OR 2<br>4) 'brain tumor'/exp<br>5) 'glioma'/exp<br>6) ((brain* OR cerebral OR cerebro* OR cerebel* OR intracranial OR 'intra cranial' OR intraventricular OR ventricular OR infratentorial OR supratentorial OR hypothalam* OR cranial OR astrocytic OR 'posterior fossa' OR 'choroid plexus' OR glial OR pineal OR pituitary OR ependymal OR medullary OR mesenceph* OR midbrain OR pontine OR embryonal OR 'mixed neuro*') NEAR/2 (tumor* OR tumor* OR cancer* OR neoplas* OR carcinoma* OR metasta* OR sarcoma* OR neuroblastoma* OR papilloma* OR sarcoma* OR adenoma*)):ab,ti<br>7) glioma*:ab,ti OR glioblastoma*:ab,ti OR gliosarcoma*:ab,ti OR meningioma*:ab,ti OR astrocytoma*:ab,ti OR ependymoma*:ab,ti OR oligodendroglioma*:ab,ti OR oligoastrocytoma*:ab,ti OR hemangioblastoma*:ab,ti OR pinealoma*:ab,ti OR pinealocytoma*:ab,ti OR pineoblastoma*:ab,ti OR pinealoblastoma*:ab,ti OR pineocytoma*:ab,ti OR xanthoastrocytoma*:ab,ti OR medulloepithelioma*:ab,ti OR subependymoma*:ab,ti OR astroblastoma*:ab,ti OR ganglioglioma*:ab,ti OR medulloblastoma*:ab,ti OR craniopharyngioma*:ab,ti<br>8) 4 OR 5 OR 6 OR 7<br>9) 'arterial spin labeling'/de<br>10) 'spin labeling'/de<br>11) 'spin label'/de<br>12) 'arterial spin label*':ab,ti<br>13) asl:ab,ti OR pcasl:ab,ti OR '3d pcasl':ab,ti OR '3d asl':ab,ti<br>14) 9 OR 10 OR 11 OR 12 OR 13<br>15) 3 AND 8 AND 14<br>16) 15 AND ('article'/it OR 'article in press'/it OR 'conference paper'/it OR 'review'/it) |                                                |

On-line Table 8: Web of Science Core Collection

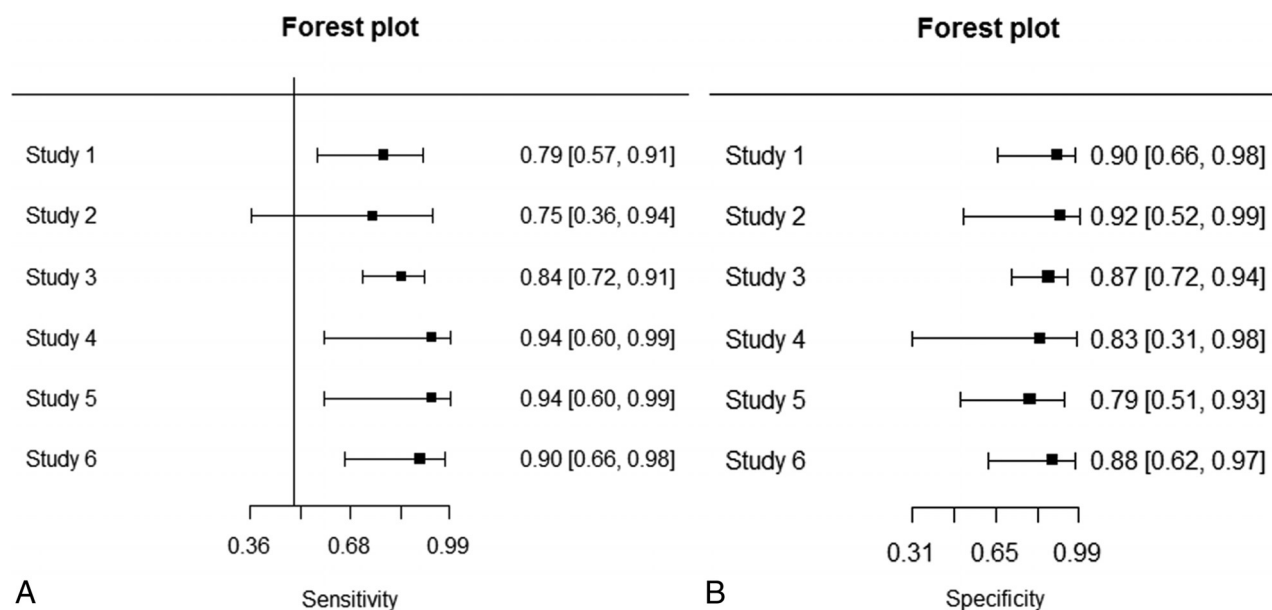
| Interface: Clarivate Analytics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Field Labels                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Date of Search: January 8, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | • TS/Topic = title, abstract, author keywords and Keywords Plus |
| Number of hits: 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | • NEAR/x = within x words, regardless of order                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | • * = truncation of word for alternate endings                  |
| 1) TOPIC: ((Infan* or newborn* or "new-born*" or perinat* or neonat* or baby* or "babies" or toddler* or minors* or "boy" or "boys" or "boyfriend" or "boyhood" or girl* or "kid" or "kids" or child* or adolescen* or juvenil* or youth* or teen* or "under*age*" or pubescen* or pubert* or prepubescen* or pediatric* or paediatric* or peadiatric* or school* or kindergar* or preschool* or prematur* or postmatur* or preterm*))<br>2) TOPIC: (((brain* or "cerebral" or cerebro* or cerebel* or intracranial" or "intra-cranial" or "intraventricular" or "ventricular" or "infratentorial" or "supratentorial" or hypothalam* or "cranial" or "astrocytic" or "posterior fossa" or "choroid plexus" or "glial" or "pineal" or "pituitary" or "ependymal" or "medullary" or mesenceph* or "midbrain" or "pontine" or "embryonal" or "mixed neuro*") NEAR/2 (tumor* or tumor* or cancer* or neoplas* or carcinoma* or metasta* or sarcoma* or neuroblastoma* or papilloma* or sarcoma* or adenoma*))) OR TOPIC: ((glioma* or glioblastoma* or ganglioglioma* or gliosarcoma* or meningioma* or astrocytoma* or ependymoma* or medulloblastoma* or oligodendroglioma* or oligoastrocytoma* or hemangioblastoma* or pinealoma* or pinealocytoma* or pineoblastoma* or pinealoblastoma* or pineocytoma* or xanthoastrocytoma* or medulloepithelioma* or subependymoma* or astroblastoma* or ganglioglioma* or medulloblastoma* or craniopharyngioma*))<br>3) TOPIC: ("arterial spin label*") OR TOPIC: (("ASL" or "pCASL" or "3D-pCASL" or "3D-ASL"))<br>4) 1 AND 2 AND 3 Refined by: DOCUMENT TYPES: (ARTICLE OR REVIEW) |                                                                 |

**On-line Table 9: Cochrane Library**

| Interface: Wiley                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Field Labels                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Date of Search: January 8, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | • ti,ab,kw = title, abstract and author keywords |
| Number of hits: 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | • NEAR/x = within x words, regardless of order   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | • * = truncation of word for alternate endings   |
| 1) (Infan* or newborn* or new-born* or perinat* or neonat* or baby* or babies or toddler* or minors* or boy or boys or boyfriend or boyhood or girl* or kid or kids or child* or adolescen* or juvenil* or youth* or teen* or under*age* or pubescen* or pubert* or prepubescen* or pediatric* or paediatric* or peadiatric* or school* or kindergar* or preschool* or prematur* or postmatur* or preterm*);                                                                                                                     |                                                  |
| ab,ti,kw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  |
| 2) ((brain* or cerebral or cerebro* or cerebel* or intracranial or intra-cranial or intraventricular or ventricular or infratentorial or supratentorial or hypothalam* or cranial or astrocytic or "posterior fossa" or "choroid plexus" or glial or pineal or pituitary or ependymal or medullary or mesenceph* or midbrain or pontine or embryonal or "mixed neuro*") near/2 (tumor* or tumor* or cancer* or neoplas* or carcinoma* or metasta* or sarcoma* or neuroblastoma* or papilloma* or sarcoma* or adenoma*));ab,ti,kw |                                                  |
| 3) (glioma* or glioblastoma* or ganglioglioma* or gliosarcoma* or meningioma* or astrocytoma* or ependymoma* or medulloblastoma* or oligodendroglioma* or oligoastrocytoma* or hemangioblastoma* or pinealoma* or pinealocytoma* or pineoblastoma* or pinealoblastoma* or pineocytoma* or xanthoastrocytoma* or medulloepithelioma* or subependymoma* or astroblastoma* or ganglioglioma* or medulloblastoma* or craniopharyngioma*);ab,ti,kw                                                                                    |                                                  |
| 4) 2 or 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                  |
| 5) ("arterial spin label*" or ASL or pCASL or "3d pcasl" OR "3d asl");ab,ti,kw                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |
| 6) 1 and 4 and 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  |



**ON-LINE FIG 1.** Search strategy. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart of the study inclusion stratified for identification of studies, screening of eligible studies, eligibility assessments, and final inclusion of studies in the qualitative and quantitative assessments.



**ON-LINE FIG 2.** A, Forest plot of sensitivity (rCBF). Distribution of sensitivity of rCBF to discriminate LGT and HGT in 3 studies. The vertical line at sensitivity 0.5 indicates the null point of reference. Studies 1–3 indicated in the graph represent the 3 subgroups in Dangouloff-Ros et al, 2016<sup>17</sup> separating hemispheric (study 1), thalamic (study 2), and posterior fossa (study 3) tumors. Study 4 indicates Dangouloff-Ros et al, 2015.<sup>27</sup> Study 5 indicates Kikuchi et al 2017,<sup>33</sup> and study 6 indicates Morana et al 2017.<sup>30</sup> B, Forest plot of specificity (rCBF).