2D-3D brain and liver data bases for evaluation of MRI post-processing methods.

WG3 - JD de Certaines

COST B 21

LODZ, 7-8 Oct. 2005

Constitution of the 3 D data base: 1.5T

- BRAIN
  - T.JARDANHAZY, SZEGED (H)
  - D.DOBROTA, MARTIN (SK)
  - M.HAJEK, PRAGUE (CZ)
  - L.R.SCHAD, HEIDELBERG (D)
  - J.R. REICHENBACH, JENA (D)

Constitution of the 3D
data base: 1.5T

- LIVER

  – D.DOBROTA, MARTIN (SK)
  – M.HAJEK, PRAGUE (CZ)
  – R.A.LERSKI, DUNDEE (UK)

Constitution of the 3D
data base: 3T

- BRAIN
  – A.LUNDERVOLD, BERGEN (N)
  – J.de CERTAINES, RENNES (F)

- LIVER
  – J.de CERTAINES, RENNES (F)

Constitution of the 3D-3T data base: LIVER

- 7 patients (RENNES (F))
  - 3 F0 (no fibrosis, METAVIR)
  - 2 F1 (1st grade of fibrosis)
  - 2 F4 (cirrhosis)
  - (1 patient with and without Gd-DOTA)
- Acquisition 2x2x4 mm but image reconstruction in 2x2x2 mm
- GE T1w (Thrive): TR= 2.8, TE=1.4, Flip angle: 10°

Constitution of the 3D-3T data base: BRAIN

- patients (RENNES (F)):
  - 3 glioblastomas (gbm): pre + post Gd-DOTA
  - 2 meningiomas (m): 1 pre and 1 pre+post
  - 1 hemangioblastoma (hmb): pre
  - 1 neurocytoma (nc): pre+post
  - 1 oligoastrocytoma gr II (oaII): pre

  3D T1w TR= 9.9 ms, TE= 4.6 ms, flip angle= 8°
  1x1x1 mm3 , parallel imaging

Multicenter comparative evaluation of:

- 3D and 2D MRI-TA softwares?
- Methods for fibrosis quantification (liver)?
- Glioblastoma segmentation?

after preliminary quality assessment?

MRI quality assessment.

- Spatial resolution
- Signal homogeneity

OBJET-TEST
Eurospin Mk III de SPIN-SAFETY

TO 1

- Signal/bruit
- Uniformité
- Profils d'uniformité
...

IRM

OBJET-TEST
Eurospin Mk III de SPIN-SAFETY

TO 2

- Résolution spatiale
- Distorsions géométriques
- profil de coupe
- épaisseur de coupe
...

IRM

OBJET-TEST
Eurospin Mk III de SPIN-SAFETY

TO 3

- Position des coupes en mode multi-coupes et en 3 D

IRM

OBJET-TEST
Eurospin Mk III de SPIN-SAFETY

TO 4

- Contraste
- Contraste sur bruit
- T1, T2, N (H)

IRM

Users potentially interested:

- LIVER: London, Prague, Lodz, Dundee, Rennes

- BRAIN: London, Prague, Lodz, Heidelberg, Jena…

Conclusion and decision

- Who?
- How?
- Why?
- When?