

3rd INTERNATIONAL WORKSHOP ON INTERIM-PET IN LYMPHOMA



Poster Discussion : Hodgkin Lymphoma

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Hodgkin Lymphoma

1. Technical abstracts

- Diagnostic criteria (scale, children, when?)
- Reproducibility: network performance
- Semiautomatic methods

2. Clinical abstracts

3. Cost-effectiveness analysis



Report on the First International Workshop on interim-PET scan in lymphoma (HD & DLBCL) “Deauville criteria”

1. No uptake
2. Uptake \leq mediastinum
3. Uptake $>$ mediastinum but \leq liver
4. Uptake moderately $>$ liver uptake, at any site
5. $\uparrow\uparrow$ increased uptake at any site and/or new sites

→ 2, 3 & 4: semiquantitative methods should be investigated
→ For therapeutic decisions, cutoff should be determined according to the clinical strategy planned

Meignan et al. *Leuk Lymphoma* 2009;50:1257-60.



Diagnostic criteria of interim PET

A 100 - I. Garai, S. Barna, Zs. Miltényi, A. Gál, L. Varóczy, F. Magyari,
J. Varga, Á. Illés

ScanoMed, Debrecen; Internal Medicine, University of Debrecen, Hungary

PROGNOSTIC VALUE OF INTERIM 18FDG-PET/CT IN PATIENTS WITH HODGKIN'S
LYMPHOMA USING DIFFERENT 5-POINT VISUAL SCALES

- 82 newly-diagnosed HL patients stage (IIB-IVB); median FU 2 years
- 6 ABVD/EBVD and radiotherapy
- The result of interim PET/CT did not affect treatment
- Testing of different MRU at iPET:
 - Better prognostic value (OS, PFS) when PET positive $> (\geq)$ liver uptake
 - No significant difference for the PET negative group



Diagnostic criteria in children?

A 113 - C. Furth, H. Amthauer, H. Hautzel, I. G. Steffen, J. Ruf, J. Schiefer, S. Schönberger, G. Henze, R. Grandt, P. Hundsdoerfer, M. Dietlein, C. Kobe
Magdeburg, Jülich, Düsseldorf, Berlin, Cologne

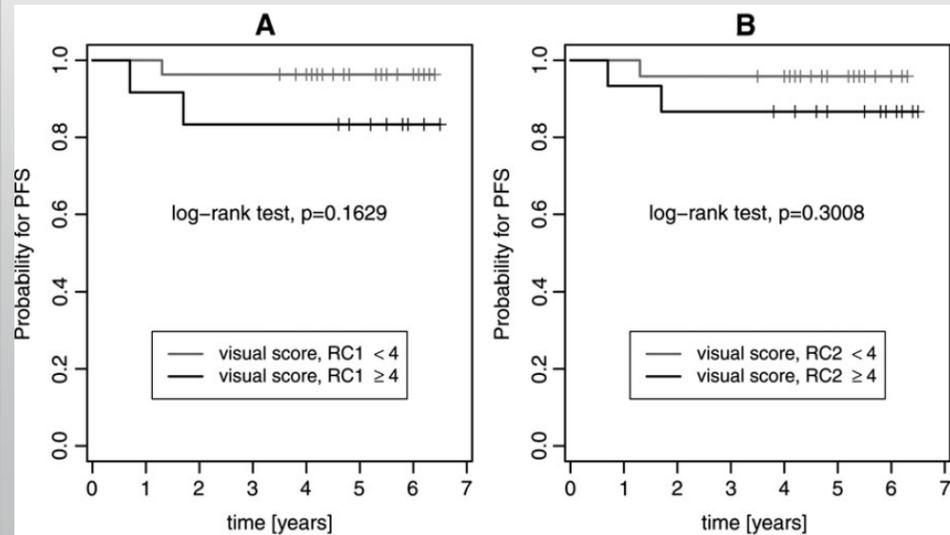
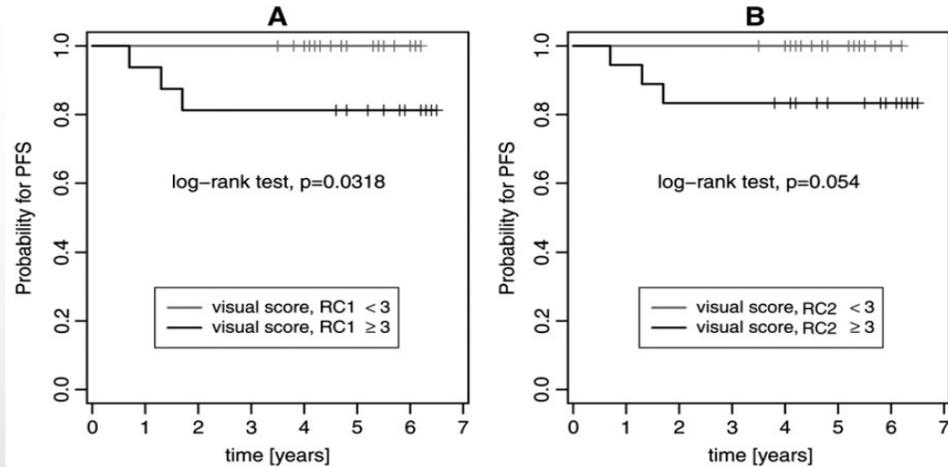
EVALUATION OF INTERIM PET RESPONSE CRITERIA IN PAEDIATRIC
HODGKIN'S LYMPHOMA: RESULTS FOR DEDICATED ASSESSMENT CRITERIA
IN A BLINDED DUAL-CENTRE READ

- N=39
- 5 point-scale response criteria for interim PET
- 2 centers, 2 experienced readers/center





Results / Conclusions from Study (A113)



- I) Recommended „PET-based only“ response criteria are robust and easy to use (low inter-observer variability assured by kappa=0.75).
- II) Interim PET-findings/residuals scored with ≥ 3 should be judged as PET-positive finding.
- III) High sensitivity and NPV of interim PET may warrant to further decrease therapy-related toxicity.

When to use them?

A 101 - J. Zaucha, B. Małkowski, M. Kobylecka, M. Dziuk, A. Warszewska, J. Tajer, E. Subocz, J. Dietczenia, W. Kulikowski, E. Chmielowska, D. Woszczyk, R. Kroll, P. Piwkowski, J. Walewski

INTERIM PET1 COMPARED TO PET2 IN PATIENTS WITH HODGKIN LYMPHOMA TREATED WITH ABVD - POLISH OBSERVATIONAL STUDY

- Observational study in 124 HL patients treated with ABVD
- 38 with early unfavorable and 86 with advanced stage HL
- PET1 in all patients, PET2 in only positive or MRU PET1
- No progression in PET1 negative patient = high NPV (85%)
- PET2 PPV (78%) seems to be better than PET1 PPV (51%)
- Longer FU and central PET review of PET are needed

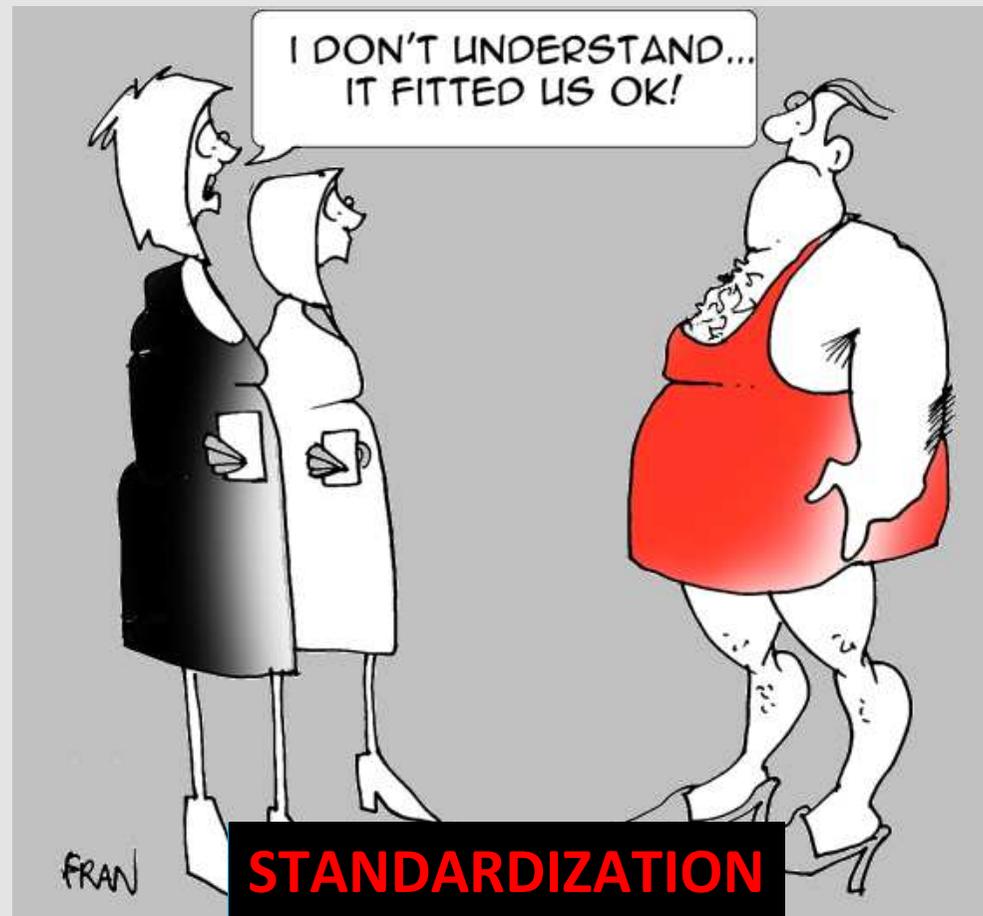
→ **Deescalation**

→ **Escalation**



FDG uptake: key messages

- Highly sensitive for measuring tumor load, but limited specificity
- Dynamic process
- Difficult to quantify
 - ⇒ Standardization for
 - Preparation
 - Acquisition
 - **READING**



How to improve reproducibility?

C 104 - S. Chauvie, A. Stancu, A. Biggi, P. Cerello, A. Cavallo, A. Gallamini

S. Croce e Carle Hospital, Cuneo; National Institute of Nuclear Physics, Torino, Italy

WIDEN : A NEW ONLINE TOOL FOR IMAGING-BASED CLINICAL TRIALS MANAGEMENT

- WIDEN = Web-based Imaging Diagnosis by an Expert Network
- Prospective multicenter Italian clinical trial HD 0607: treatment intensification based on PET2 result
- Training period needed to improve speed reading
- Effective tool for medical imaging exchange and review
(data security, simplicity, low cost, feasibility and prompt scan review)



“Centralized reading effect”

A 114 - M. Meignan, M. Hutchings, A. Versari, P. Olivier, R. Ricci, I. Hristova, C. Fortpied, T. Vander Borgh, S. Bardet, M. Federico, M. Bellei, J. Raemaekers, O. Reman, M. André. on behalf of GELA/EORTC/FIL

SOFTWARE AND VIEWER EFFECTS ON INTERIM PET REPORTING IN THE H10 TRIAL

- H10 trial: PET adapted R/ after 2 ABVD in stages I-II HL
- Centralized reading:
 - G1 (GELA): 6 experts, a dedicated online centralized network and PET reporting
 - G2 (EORTC/FIL): 5 experts, web-based, non-dedicated software
- Interim analysis: 1137 patients, 80% PET negative, 34 events
Extraction of 85 baseline scans and corresponding iPET scans (50% events)
Same workstation, 2 readers in each group, comparison between new and original reading
- Results: G2 reading G1 ($k=0.82$), G1 reading G2 ($k=0.54$; FN)
- **Same dedicated software for iPET reporting is mandatory**



Tumor burden evaluation?

C 103 - A Versari, C Coriani, F Fioroni, PG Gobbi, S Luminari, A Ferrari, M Casali, F Merli

S.Maria Nuova Hospital-IRCCS-Reggio Emilia; S.Matteo Hospital-Pavia;
University of Modena-Reggio Emilia - ITALY

TUMOR VOLUME EVALUATION: COMPARISON BETWEEN CT AND PET/CT IN
PHANTOMS AND PATIENTS WITH HODGKIN LYMPHOMA

- Phantoms experiments:

Volume measurement: CT → manually, PET → segmentation software
Using 45% threshold, PET closer the actual phantom volume

- HL patients:

Less concordant volume measurements
PET faster, but variable threshold



Semiautomatic methods

A 106 - R.Kluge, D.Hasenclever, L.Kurch, A.Elsner, L.Tchavdarova, F. Montravers, M. Hoffmann, C.Kobe, O.Sabri, C., D.Körholz

Universities of Leipzig, Paris, Vienna, Cologne, Halle, Hermes
Med. Sol., Stockholm

SEMIAUTOMATIC METHOD FOR DISCRIMINATION BETWEEN ADAEQUATE AND
INADAEQUATE EARLY RESPONSE IN FDG PET/CT OF PAEDIATRIC HODGKIN
LYMPHOMA(HL) PATIENTS

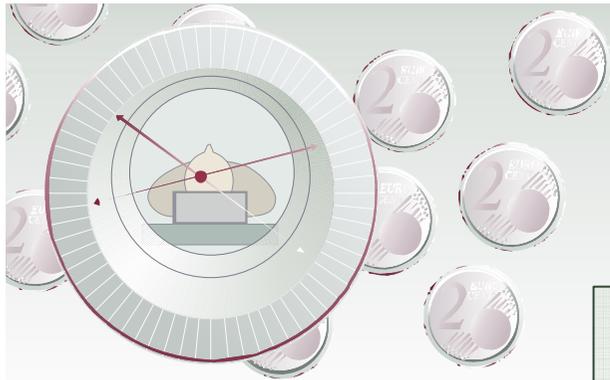
C 101 - A. Elsner, Hermes Medical Solutions, Sweden

L. Kurch, L. Tchavdarova, A. Barthel, O. Sabri, R. Kluge, Dept. Nuclear Medicine, Univ.
of Leipzig, Germany

D. Körholz, Dept. Paediatrics, Univ. Halle, Germany

“TUMOR-FINDER” AND “RESPONSE-CONTROLLER” - SEMIAUTOMATIC ALGORITHMS
FOR DETECTION AND QUANTIFICATION OF TUMOR LESIONS IN LYMPHOMA





Introduction

levels of diagnostic accuracy

DIAGNOSTIC PERFORMANCE

Does imaging allow accurate diagnosis to be made?

DIAGNOSTIC IMPACT

Does imaging change the diagnostic confidence or the use of subsequent tests?

THERAPEUTIC IMPACT

Does imaging change the management plan?

SOCIETAL IMPACT

What is the cost per improvement of (Quality Adjusted) Life Expectancy

To a better HL management?

A 115 - Borra A, Marchetti M, Biggi A, Chauvie S, Stancu A, Cerello P, Cavallo A, Gallamini A

COST – EFFECTIVENESS OF INTERIM PET RESPONSE – ADAPTED THERAPY IN ABVD – TREATED, ADVANCED – STAGE HODGKIN LYMPHOMA

