PDL1 in lymphomas with Hodgkin-Reed-Sternberg (HRS) morphology: the troubleshooter

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Hodgkin lymphoma

Malignant Lymphomas

Hodgkin Lymphoma
15%

Classical Hodgkin Lymphoma

Nodular Lymphocyte predominant lymphoma

Non Hodgkin Lymphoma
85%

Low grade

High grade

Non Hodgkin Lymphoma

HL milestones

**1666**
Langhan & Greenfield
- Described a series of seven patients

**1832**
Thomas Hodgkin
- Described histological features

**1898**
Sternberg
- Identification of RS cells (D. Reed)

**1902**
- Understanding the neoplastic nature of the pathology

**1975**
Seif, Boecker et al
- Genetical evidence of the neoplastic nature

**1999**
- Demonstration RS cells originate from germinal centre

**1942**
Gall & Mallory
- Confirming the neoplastic nature of the pathology

**1872-78**
- Described histological features

**1902**
Langhan & Greenfield
- Described a series of seven patients
Immunomodulant tumor

- Creation of immunodormant microenvironment blocking the immunitary checkpoints.
- Defective antigen presentation
- Inhibitory mechanisms
- Resistant tumor cells

The tumor-associated chronic inflammation makes the tumor microenvironment immunosuppressive favoring tumor outgrowth.
Genetic abnormalities at 9p24.1 have been reported with high incidence in classical Hodgkin lymphomas (cHL) producing PDL1 overexpression.

The efficiency of the immune checkpoint blockade with monoclonal antibodies in cancer treatment is remarkable.
Study aim

PDL1 IHC Analysis

PDL1 FISH amplification Analysis

To differentiate

Classical Hodgkin Lymphoma

VS

Aggressive NH Lymphoma
Our cohort

17 males
- Classical HL
- Hodgkin: 5 cases
- Non Hodgkin: 12 cases

14 females
- Classical HL
- Hodgkin: 8 cases
- Non Hodgkin: 6 cases

12 cases
- DLBCL: 9 cases
- ALCL: 3 cases
- THRLBCL: 1 case

8 cases
- DLBCL: 5 cases
- THRLBCL: 1 case
Our analysis

Fluorescence in situ hybridization (FISH) on paraffin embedded specimens was performed using Zyto Light SPEC CD274, PDCD1LG2/CEN 9 Dual Color Probe provided by ZytoVision (Bremerhave, Germany).

PD1 and PDL1 staining was manually performed using SP142 clone. Immunoreactivity for PDL1 and PD-1 was evaluated semiquantitatively as the percentage of immunoreactive cells on the total of tumor cells. Average intensity of staining was reported too.
Our results
Immunohistochemistry
Our results
Immunohistochemistry

ALCL

CD30

PDL1
Our results
Immunohistochemistry

DLBCL

CD20

PDL1
All HL showed 2+ to 3+ PDL1 immunohistochemical expression.

Among NHL, PDL1 expression was detected in only 4 (25%) cases: 3 out of 3 anaplastic large cell lymphoma (ALCL) and 1 out of 9 diffuse large B cell lymphoma.
Our results

PDL1 FISH detection

FISH analysis showed 9p polisomy in more than half cases without correlation with PDL1 immunohistochemistry whereas amplification of the target region was not observed in any case.
Constitutive AP-1 Activity and EBV Infection Induce PD-L1 in Hodgkin Lymphomas and Posttransplant Lymphoproliferative Disorders: Implications for Targeted Therapy

Scott J. Rodig, Jing Ouyang, Przemyslaw Juszczynski, Treeve Currie, Kenneth Law, Donnc S. Neuberg, Gabriel A. Rabinovich, Margaret A. Shipp, and Jeffery L. Kutok
Conclusions

Our study suggests that PDL1 expression is characteristic of cHL and ALCL, and may represent a valid diagnostic tool in differentiating HL from some NHL which have inside HRS-like cells, especially T cell histiocyte rich large B cell lymphoma.
Thanks for your attention