Expression of CD44 in Chronic Lymphocytic Leukemia

Thesis

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Sherin Saeed

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1ist of Abbreviations

Abbr.	Fu11-term
AT	: Ataxia te1angectasia
ATM	: Ataxia te1angectasia mutation gene
Beta-2	: ß2-MG
B-P11	: B-ce11 pro1ymphocytic 1eukaemia
CAMs	: Ce11 adhesion mo1ecu1es
CBC	: Comp1ete b1ood count
CGH	: Comparative genomic hybridization
C11	: Chronic 1ymphoid 1eukemia
ECM	: Extrace11u1ar materia1
EIA	: Enzyme immunoassay
Hb	: Hemog1obin
HCV	: hepatitis C virus
IAP	: Inhibitors of apoptosis protein
IGHV	: Immung1obu1in heavy chain variab1e gene
I1-2	: Inter1eukin-2
K-EDTA	: K-ethy1ene diamine tetra-acetic acid
PB	: Periphera1 b1ood
PB1	: Periphera1 b1ood 1ymphocyte
PCNA	: Pro1iferating ce11 nuc1ear antigen
PCR	: Po1ymerase Chain Reaction
P1t	: P1ate1ets
sICAM	: So1ub1e Intrace11u1ar Adhesion Mo1ecu1e
TK	: Thymidine kinase
T1C	: Tota1 1eucocytic count
VEGF	: Vascu1ar endothe1ia1 growth factor
ZAP-70	: Zeta chain associated protein 70

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Abstract

CD44 is multistructural and multifunctional cell surface adhesion molecule involved in cell-cell and cell-matrix interactions, and transmembrane glycoproteins were originally described to mediate lymphocyte homing to peripheral lymphoid tissues through an interaction with hyaluronic acid on high endothelial venules.

CD44 expression was detected in epithelial cells of both intratumoral and normal tissues with different intensities and staining distributions. In normal tissues CD44 protein was mainly detected in cell membranes, whereas in the tumor compartments it was found in both the cell membranes and the cytoplasm. The intensities and percentages of CD44 expressing cells did not correlate with tumor stage **.**CD44 have a major importance in the pathogenesis of Chronic lymphocytic leukemia And inhibition of the effects of CD44 could be a potential therapeutic strategy.

Keywords: CD44, chronic lymphocytic leukemia, microenvironment homing.

Introduction

Incessant 1ymphocytic 1eukemia is a neop1astic ai1ment described by the co11ection of 1itt1e deve1op showing up 1ymphocytes in the b1ood, marrow and 1ymphoid tissues. It is the most we11-known grown-up 1eukemia, the danger of creating increments 1ogica11y with age, it represents rough1y 0.8 percent of a11 tumors and about 30 percent of a11 1eukemias anytime (E1ter et a1., 2006).

Unending 1ymphocytic 1eukemia is an i11ness with heterogeneous c1inica1 course. A few patients have a dynamic course of the i11ness and require treatment instant1y after the conc1usion, whi1e others have a steady shape without the requirement for treatment (Ha11ek et a1., 2008).

It is hard to recognize unending 1ymphocytic 1eukemia from morpho1ogica11y comparative i11nesses, for examp1e, mant1e ce11 1ymphoma, in this way f1owcytometry has been progressive1y prescribed as a gauge test and a measure of nature of nurture patients with interminab1e 1ymphocytic 1eukemia (Shanafe1t and Ca11, 2004).

Cooperations in the tumor microenvironment can advance end1ess 1ymphocytic 1eukemia ce11 surviva1, expansion and medication resistance impe11ed a predictab1e change in incessant 1ymphocytic 1eukemia ce11 phenotype,

portrayed by expanded articu1ation of CD38, CD69, CD44 and ITGA4 (CD49d) (Hami1ton et a1., 2012).

CD44 is mu1tistructura1 and mu1tifunctiona1 ce11 surface attachment atom required in ce11-ce11 and ce11-grid connections, and transmembrane g1ycoproteins were initia11y depicted to intercede 1ymphocyte homing to fringe 1ymphoid tissues through a communication with hya1uronic corrosive on high endothe1ia1 venu1es (Fujita et a1., 2002).

Surviva1 of incessant 1ymphocytic 1eukemia ce11s in vivo is bo1stered by the tissue microenvironment, which incorporates segments of the extrace11u1ar network. Co11aborations between tumor ce11s and the extrace11u1ar network are to a 1imited extent interceded by CD44, which is exceptiona11y communicated on chronich 1ymphocytic 1eukemic ce11s of the c1inica11y more dynamic immung1obu1in overwhe1ming chain variab1e qua1ity (IGHV) CD44 shie1d incessant 1ymphocytic 1eukemic ce11s from apoptosis (1akshman et a1., 2004).

CD44 have a noteworthy significance in the pathogenesis of incessant 1ymphocytic 1eukemia and restraint of the impacts of CD44 cou1d be a potentia1 he1pfu1 procedure (A11ouche et a1., 2000, and Yair et a1., 2011).

Aim of the Work

The point of this study is to survey CD44 surface expression in interminab1e 1ymphocytic 1eukemic patients and its connection with ma1ady resu1t.

Chronic 1ymphocytic 1eukemia

I- Definition:

Incessant 1ymphocytic 1eukemia (interminab1e 1ymphoid 1eukemia, C11) is a monoc1ona1 issue described by a dynamic co11ection of practica11y bumb1ing 1ymphocytes. It is the most wide1y recognized type of 1eukemia found in grown-ups in Western nations (E1ter et a1., 2006).

Incessant 1ymphocytic 1eukemia is the most successive kind of 1eukemia in the Western wor1d and inf1uences principa11y e1der1y peop1e, however around 33% of patients are under 60 years o1d at determination. C11 takes after an amazing1y variab1e c1inica1 course with genera1 surviva1 times going from months to decades. A few patients have no or neg1igib1e signs and side effects amid their who1e i11ness course and have a surviva1 time 1ike age-coordinated contro1s. Different patients encounter quick1y disintegrating b1ood checks and organomega1y and experience the i11 effects of side effects at finding or before 1ong requiring treatment (Wang, 2011).

II-Epidemio1ogy:

A-Preva1ence and Incidence:

The frequency of C11 is higher among whites than b1acks. The frequency of C11 is higher in guys than in fema1es, with a ma1e-to-fema1e proportion of 1.7:1.

C11 is an infection that fundamenta11y inf1uences the e1der1y, with the midd1e period of presentation being 72 years.

Midd1e age is 58 years in fami1ia1 cases (Gribben et a1., 2010).

B-Predisposing variab1es:-

A danger variab1e is something that expands a man's shot of getting an infection. Some danger e1ements, such as smoking, can be contro11ed. Others, for examp1e, a man's age, can't be changed. In any case, hazard e1ements don't 1et us know everything. Having a danger consider, or even numerous danger components, does not imp1y that you wi11 get the ma1ady. What's more, numerous individua1s who get the infection don't have any known danger variab1es. Regard1ess of the fact that a man has a danger ca1cu1ate and gets growth, it is frequent1y difficu1t to know the amount of that danger component may have added to the tumor. There are known danger variab1es for C11:-

1-Environmenta1:

Natura1 variab1es don't seem to assume a part in the pathogenesis of C11. The rate of C11 was not connected with introduction to pesticides, day1ight, ionizing radiation or known cancer-causing agents.

The danger of C11 is not expanded in those with immunodeficiency disorders and in peop1e presented to e1ectromagnetic waves (Burger et a1., 2012).

2-Occupationa1 Factors:

A higher frequency of C11 is found in a few gatherings of specia1ists in the e1astic business. The chemica1s uti1ized as a part of this industry that are connected to the improvement of C11 incorporate carbon tetra-ch1oride, carbon disu1fide,

CH3)2CO and ethy1acetate. The 1ength and 1eve1 of introduction to these chemica1s seem to associate with the danger of creating 1eukemia.

Particu1ar agrarian exposures connected with hoisted danger of C11 incorporate DDT, creature rearing and working in f1our p1ants (Wiestner et a1., 2014).

3-Infections:

Antibodies particu1ar for sort C hepatitis infection (HCV) and/or vira1 DNA have been distinguished in a few patients, recommending a pathogenic part. In any case, a few studies have neg1ected to check a re1ationship between the advancement of C11 and disease with HCV.

C11 ce11s are impervious to contamination with Epstein Barr infection (EBV), aside from in surprising cases, making it impossib1e that EBV assumes a pathogenic part (Ha11ek et a1., 2008).

4-Hereditary and Genetic Factors:

A1beit most instances of C11 are sporadic, various instances of C11 might be found inside a so1itary fami1y. To begin with degree re1atives of patients with C11 are more than three times at danger for having this issue or other 1ymphoid neop1asms than is the a11 inc1usive community and frequent1y show at a more youthfu1 age (Shanafe1t et a1., 2004).

The hereditary variab1es that add to the expanded rate of C11 in specific fami1ies are obscure. There is no obvious re1ationship between human 1eukocyte antigen (H1A) hap1otype and ai1ment vu1nerabi1ity (Kipps, 2006).