MYOSINIC EXPERSSION IN A TISSUE PATIENT WITH BLADDER CANCER IN IRAQ

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SUMMARY
The urinary bladder cancer in Iraq of all kinds One of the most common malignant tumors It is Grade second class after lung cancer in men and tenth Grade in the women by the Iraqi cancer in 2011 the Council of reaching the number of cases in males 866 cases in the rate of 9.26%, while the females, reaching the number of cases 297 in the rate of 2.72%. The study was conducted at the Hospital of the martyr Ghazi al-Hariri and Oncology Research Unite of The Oncology Hospital / Medical City The study extended from The October 2014 to June 2016. Therefore, the present study was aimed to expression identify the adhesion molecules that correlate with the effectiveness bladder cancer such as, Myosin IC in the 40 patients with bladder cancer(BC). The result showed a higher expression Myosin IC In the tissue of patients with bladder cancer in both Males and females of ratio 100%. significant differences appeared below the level of probability ** (P <0.01). Conclusions: The results indicate that the adhesion molecules and anti-adhesion factors in the tissues is important to determine the grade and stega of effectiveness of the disease in patients with bladder cancer Determine the type of treatment is useful for them.

KEYWORD: Adhesion molecules, bladder cancer, Myosin 1c.

INTRODUCTION
The urinary bladder cancer in Iraq of all kinds One of the most common malignant tumors as class ranked second after lung cancer in men tenth place in the women by the Iraqi cancer in 2011 the Council of reaching the number of cases in males 866 rose 9.26%, while the females, reaching the number of 297 cases, 2.72% (Iraqi Cancer Registry, 2011).[1]
The smoking and occupational exposure. Occupational exposures in the chemical and textile industries and currently use for long periods of relievers Phenacetin analgesic, the main risk factors associated with bladder cancer (Kaufman, 2006).[2]

Schistosomiasis is endemic in Middle East countries including Iraq. (Marina et al., 2004)[3] Schistosoma haematobium cystitis appears to be causally related to the development of bladder cancer often squamous cell carcinoma (SCC) (Edward, 2007).[4]

Proteins myosin is the class of molecular motors that use traditional energy derived from the hydrolysis of ATP (ATP hydrolysis) for the transfer of cargo along the actin filaments. Actin filaments in specific locations within the cells (Pecci et al., 2014; Bustamante et al., 2004).[5,6] In this way, the myosin-mediated Myosin motors engines regulation Signal waterfalls and a large rate of the basic processes, from cell growth and differentiation and apoptosis and immigration, immune response (Hancock, 2010).[7]

Intracellular transport is largely driven by processive microtubule- and actin-based molecular motors. Nonprocessive motors have also been localized to trafficking cargos, but their roles are not well understood. (Brandstaetter et al., 2012; Yip et al., 2008).[8,9] Myosin-Ic (Myo1c), a nonprocessive actin motor, functions in a variety of exocytic events, although the underlying mechanisms are not yet clear. To investigate the interplay between myosin-I and the canonical long-distance transport motor kinesin-1, we attached both motor types to lipid membrane-coated bead cargo, using an attachment strategy that allows motors to actively reorganize within the membrane in response to the local cytoskeletal environment. We compared the motility of kinesin-1-driven cargos in the absence and presence of Myo1c at engineered actin/microtubule intersections. We found that Myo1c significantly increases the frequency of kinesin-1-driven microtubule-based runs that begin at actin/microtubule intersections. Myo1c also regulates the termination of processive runs. Beads with both motors bound have a significantly higher probability of pausing at actin/microtubule intersections, remaining tethered for an average of 20s, with some pauses lasting longer than 200s. The actin-binding protein nonmuscle tropomyosin (Tm) provides spatially specific regulation of interactions between myosin motors and actin filaments in vivo (Clayton et al., 2014)[10] in the crossed-filament in vitro assay, we found that Tm2-actin abolishes Myo1c-specific effects on both run initiation and run termination. Together, these observations suggest Myo1c is important for the selective initiation and termination of kinesin-1-driven runs along microtubules at specific actin filament populations within the cell (Gunning et al.,
MATERIALS AND METHODS

Methods

Histopathological examination

Formalin fixed bladder cancer biopsies were routinely processed in histopathology laboratory. Paraffin embedded biopsies were severally sectioned at 4 µm thickness (Grizzle, 2009).

Biopsy samples were obtained from 40 patients (33 males and 7 females; range age 29-85 years, using histological examination technique Histopathology immunological and technical textile chemicals. Immunohistochemistry of adhesion molecules Myosin 1c.

One section was made on ordinary slides and stained with Haematoxylin and eosin (Appendix II). Histopathological diagnosis was made by senior histopathologists.

Action Steps: (Santa cruz)

- De-paraffinized sections in two changes of xylene of 4 min each.
- Re-hydrated sections through graded alcohols of 4 min each wash in tap water.
- Antigen unmasked in Tris-EDTA buffer pH 9. And microwaved for 25 minute. - After cooling for 15 to 30 minutes.
- Peroxidase block for 5 minutes then washed in PBS for 2x5 minutes.
- Protein block for 5 minutes then washed in BPS for 2x5 minutes.
- The biopsies were incubated with monoclonal primary antibody for one hour at room temperature in 1:30 dilution biopsies were washed in PBS 2X5 minutes
- Post primary block solution for minutes washed in PBS 2X5 minutes.
- Incubated with a secondary antibody novolink polymer mouse and rabbit immunoglobulins) for 30 minutes washed in PBS 2X5 with gentle rocking.
- DAB and DAB Substrate were used for 5 minutes then washed with water.
- Finally biopsies were counterstained with haematoxylin, washed in water, dehydrated and mounted.

RESULTS

Tissue expression of the Myosin IC molecule

The study showed that the degree of expression of the molecule Myosin IC in males in the Score III was increased by 69.69% and 7 in scoreII increased by 21.21% and 3 in score1
(9.09%) and the ratio total 100%, while the females as the number was in the (4) in score III percent 57.14% and score II 3 increased by 42.85% as the percentage in the female 100% as significant differences appeared below the level of probability ** (P <0.01) as in the table.1, figar 1.

Table (1) shows the degree of expression of the adhesion molecule Myosin IC for a number Scores.

<table>
<thead>
<tr>
<th>Sex</th>
<th>NO</th>
<th>0</th>
<th>%</th>
<th>I</th>
<th>%</th>
<th>II</th>
<th>%</th>
<th>III</th>
<th>%</th>
<th>Total</th>
<th>Expression %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>9.09</td>
<td>7</td>
<td>21.21</td>
<td>23</td>
<td>69.69</td>
<td>33</td>
<td>100%</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>42.85</td>
<td>4</td>
<td>57.14</td>
<td>7</td>
<td>100%</td>
</tr>
<tr>
<td>Chi-square</td>
<td>---</td>
<td>0.00 NS</td>
<td>4.362 **</td>
<td>8.925 **</td>
<td>5.094 **</td>
<td>0.00 NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* (P<0.05), ** (P<0.01), NS: Non-significant.

![Graph](image_url)

Figure (2): The degree of adhesion molecule expression of myosin IC into the fabric of patients with bladder cancer depending on the degree score.

The study showed through histological examination of samples dyed textile technology immune to the adhesion molecule myosin IC as it appeared higher expression for males in the Intensity of the following number Inten. III was in the number (17) and Inten. II was number 8 and number Inten. I (1) and the total expression 33 myosin IC 100%. The female expression of myosin IC was in Inten. III (4) and Inten. II number (3) and the total number (7) and by 100%. And it appeared significant difference between the degree of tumor and Low and High Intensity and Score. Worth (0.001 **). And also it appeared significant difference value of (0.001 **) in the expression of myosin IC Stage stages of bladder cancer, as it was an expression CIS stage 100% and stage TCC% and 100% stage Ta and T1 stage 100%.
As for the age groups as it appeared significant difference in the expression of myosin IC value of (0.001 **) in the age group (20-49) as their number (7) 100%, age (50-79). It was their number (30) 100%. The third age group (80-90). It was their number (3) 100% All under the level of probability (** p <0.01) as in the table (2).

Table (2) shows the relationship of some of the factors with the degree of expression of Myosin IC into the fabric of patients with bladder cancer.

<table>
<thead>
<tr>
<th>NO</th>
<th>Myosin IC</th>
<th>Grade</th>
<th>Factor</th>
<th>Score</th>
<th>Intensity</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>33 (100%)</td>
<td></td>
<td></td>
<td>Sex</td>
<td>3</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>7 (100%)</td>
<td></td>
<td></td>
<td>Female</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>**(P&lt;0.01)</td>
</tr>
<tr>
<td>8 (100%)</td>
<td></td>
<td></td>
<td>Stage</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6 (100%)</td>
<td></td>
<td></td>
<td>CIS</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2 (100%)</td>
<td></td>
<td></td>
<td>TCC</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 (100%)</td>
<td></td>
<td></td>
<td>Ta</td>
<td>2</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T1</td>
<td>**(P&lt;0.01)</td>
<td>**(P&lt;0.01)</td>
<td>**(P&lt;0.01)</td>
</tr>
<tr>
<td>7 (100%)</td>
<td></td>
<td></td>
<td>Age (Y)</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>24 (100%)</td>
<td></td>
<td></td>
<td>20-49</td>
<td>2</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>3 (100%)</td>
<td></td>
<td></td>
<td>50-79</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80-90</td>
<td>**(P&lt;0.01)</td>
<td>**(P&lt;0.01)</td>
<td>**(P&lt;0.01)</td>
</tr>
</tbody>
</table>

Pictures taken by an optical microscope of a section of tissue for bladder cancer stages and grades different describes the expression of myosin IC in the cytoplasm and the plasma.
Image (1): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 10x.

Image (2): a low degree, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (3): a High grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.
Image (4): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (5): a High grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 10x.

Image (6): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.
Image (7): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (8): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (9): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.
Image (10): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (11): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 10x.

Image (12): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.
Image (13): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (14): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (15): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 20x.
Image (16): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (17): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (18): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.
Image (19): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3+, under the force 10x.

Image (20): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3+, under the force 40x.

Image (21): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3+, under the force 40x.
Image (22): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3+, under the force 10x.

Image (23): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 2+, under the force 40x.

Image (24): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 2+, under the force 40x.
Image (25): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (26): a low grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 20x.

Image (27): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.
Image (28): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (29): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (30): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.
Image (31): a high grade, the expression of myosin IC in the cytoplasm and the plasma membrane of tissue dyed way bladder cancer immunohistochemistry outcome score 3 +, under the force 40x.

Image (32): a high degree grade High, in the expression of myosin IC in the cytoplasm and the plasma membrane of cells of bladder cancer tissue stained immunologically outcome score 3 +, under the force 40x.

Image (33): a high degree grade High, in the expression of myosin IC in the cytoplasm and the plasma membrane of cells of bladder cancer tissue stained immunologically outcome score 3 +, under the force 10x.
Image (34): a low grade, in the expression of myosin IC in the cytoplasm of cells of bladder cancer tissue stained immunologically outcome score 3+, under the force 40x.

Image (35): a high grade in the expression of myosin IC in the cytoplasm and the plasma membrane of cells of bladder cancer tissue stained immunologically outcome score 3+, under the force 10x.

DISCUSSION

The current study showed through histological examination of samples dyed immunological technology textile protein myosin IC afternoon expression trade him in males and 33 were 100% and females also were 100% and showed significant differences under the level of probability (** p < 0.01) And increased expression of myosin molecule Ic level in score III This explains the existence of a relationship between this molecule and the progression of the disease leads myosin IC prominent role in several signal transduction pathways It is possible to prepare a therapeutic target signals related diseases Signaling-related diseases and is structured as a result of signaling pathways mediated by integrin Integrin-mediated And participate in the expansion and migration of cells and these cells characteristically spread on the warp out of the cell through the expansion of the membrane protrusions Protrusions such as filamentous Filopodia false legs and feet laminated Lamellipodia Any ripple membrane Membrane ruffles and stick to Adhere contact sites and surrounding called Focal adhesions
Repeat this proliferation and adhesion processes in one part of the cell while the simultaneous removal of adhesion sites on the contradictory aspects of the cell is a direct basis for cellular migration (Gardel et al., 2010).\[^{14}\] And intracellular transport is paid largely through microtubule which is based molecular motors actin (Brandstaetter et al., 2012).\[^{9}\]

Membrane-bound cargos are transported throughout the cell by molecular motors that move along microtubules (MTs) and actin filaments (AFs). This transport is essential for normal cellular function, as mutations in either the motors or their adaptors contribute to diseases, including neurodegeneration (Millecamps and Julien, 2013)\[^{15}\] and sensory and metabolic disorders (Mele et al., 2011).\[^{16}\]

REFERENCES


