Cancer cells have different metabolic requirements compared to normal cells. Thus, aerobic glycolysis is mostly used by tumor cells for cell proliferation, phenomenon known as “Warburg Effect.” In tumor cells, changes in protein levels or membrane translocation of glucose transporters are related to glycolytic pathways. An increase in glucose uptake has been associated mainly with GLUT1 overexpression but may also involve an increment of other glucose transporters.

In prostate cancer, glycolytic metabolism profile differs in androgen-sensitive and insensitve cells. Androgen Receptor (AR) regulates many genes required for glucose consumption and biomass production. Moreover, an increase of glucose concentration in medium downregulates AR in LNCaP cells through NF-kB activation. In reference to GLUT transporters, GLUT1 expression in androgen-sensitive LNCaP seems to be regulated by androgens and GLUT4 expression was recently described in our laboratory. In addition, AR presence in androgen-insensitive PC-3 cells modifies the regulation of GLUT4 expression by natural compounds that block glucose uptake.

Thus, the aim of this work was to study the regulation of GLUT1/4 by androgen receptor in prostate cancer cells in order to relate the protein levels of these transporters with the AR presence and glucose uptake status.

**RESULTS**

1. GLUT1/4 levels depend on culture medium renewal in androgen-sensitive and insensitive prostate cancer cells

2. The involvement of GLUT4 transporter in glucose uptake is more relevant in androgen-insensitive prostate cancer cells

3. AR expression causes an increment of GLUT1 levels at low concentration of glucose

4. AR expression avoids cell cycle arrest by glyco-deprivation in prostate cancer cells

5. Nuclear AR correlates with GLUT1 levels while GLUT4 overexpression decreases its nuclear translocation

**CONCLUSIONS**

1. Under hypoxic conditions, AR nuclear translocalizations enhanced, correlating with an increase of GLUT1

2. GLUT4 overexpression seems to drive to androgen-insensitivity

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