The actin cytoskeleton and the translocation of β-catenin in oesophageal squamous carcinoma cells.

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Although known for its essential role in adhesion, more recently, β-catenin has been shown to have an influence on gene expression through its interaction with the LEF1/TCF complex. Hence, a disruption of the expression or regulation of β-catenin may have far reaching effects on cell functioning. The actin cytoskeleton is known to be involved with the translocation of cytoplasmic constituents. Here we examined the possible role played by the actin cytoskeleton in β-catenin translocation to the nucleus and the cytoplasm. Four human oesophageal squamous cell carcinoma (HOSCC) cell lines were treated with the actin depolymerisation drug, cytochalasin D (cytoD) for 24 hours. Western blot analysis of nuclear versus cytoplasmic/membrane fractions revealed that in WHCO1 and WHCO3, the concentration of β-catenin in the nucleus decreased in response to cytoD treatment. However, this was not the case in the SNO and WHCO5 cell lines, since treatment with cytoD led surprisingly to no change of β-catenin in the nucleus of SNO, and an increase of β-catenin in the nucleus of WHCO5. These results suggest that a functional actin cytoskeleton is required for both the translocation of β-catenin in to, and out of, the nucleus in certain oesophageal squamous carcinoma cells. The conditions that determine the direction of translocation, still need to be elucidated.