

YKL-40 IS EXPRESSED IN CAROTID BODIES IN INFLAMMATORY CONDITIONS RELATED TO HEROIN ADDICTION

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Chitinase-3-like protein or YKL-40 is a glycoprotein lacking chitinase enzymatic activity with an otherwise unknown function. However, it has been demonstrated that YKL-40 is released by a large range of activated cells during inflammation. We investigated if in carotid bodies (CB), the oxygen-sensitive organs activating the respiratory center, YKL-40 is expressed during hypoxia and inflammation. Immunohistochemistry was performed on CB obtained post-mortem from two groups of heroin addicted men and healthy male individuals. Immunohistochemistry was also performed to demonstrate the expression of HIF-1alpha, VEGF and iNOS as markers of hypoxia and inflammation. In all CB, a positive labelling for YKL-40 was observed, where the expression in the heroin addicted subjects was significantly two-times higher than in the control subjects as supported by densitometry of 9 samples per subject. The expression of YKL-40 was essentially present on neuroendocrine Type I cells and on endothelial cells. The expression of HIF-1alpha, VEGF and iNOS was also significantly increased in addicted subjects as compared to controls indicating the existence of a hypoxic condition in presence of inflammation during heroin addiction. In conclusion, YKL-40 is expressed in CB, and its expression is related to hypoxia and inflammation.