The influence of reflux on NFκB activation and Interleukin 8 (IL8) gene expression, and the carcinogenic potential of IL8 in Barrett’s Oesophagus

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NFκB is a transcription factor which when activated can lead to the upregulation of many genes involved in carcinogenesis. There is much debate as to the role of reflux components on NFκB activation in Barrett’s, especially after short exposures, which has been addressed in this study. One of NFκB’s target genes is IL8, a chemokine with an ability to induce cell migration, proliferation and angiogenesis. The role of IL8 in Barrett’s associated cancer is yet to be investigated.

After treating OE33 cells with the bile acid DCA at pH7 for between 5 and 60 minutes, nuclear (activated) p65 increases as treatment time increases (significantly after 30 minutes). A similar pattern was seen after treatment with acid (pH5) (significantly after 60 minutes). Interestingly, a combination of DCA and acid showed no increase in nuclear p65. DCA alone and acid alone caused an increase in IL8 gene expression as the treatment time increased, mirroring the translocation of p65 to the nucleus. Similarly, a DCA and acid combination induced IL8 gene expression, which appears to be due to a mechanism independent of p65 translocation to the nucleus. The effects of IL8 on OE33 cells have revealed this chemokine has the ability to induce cell migration and cell proliferation. This indicates that the increase in IL8 induced by DCA and acid has the potential to cause cells in the oesophagus to become more carcinogenic.