

# **Increase of interleukin 6 and corticosterone in the mouse model of surgically-induced immune dysfunction**

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## **1. Background / Purpose**

Surgical procedures often lead to an acquired immune dysfunction. Our previous work shows that 6h after the surgically-induced immune dysfunction (SID) interleukin (IL)-6 levels are increased. Because IL-6 is known for its crucial role in the activation of the hypothalamus-pituitary-adrenal axis, we analyzed the levels of IL-6 and corticosterone in the postoperative immune suppression.

## **2. Methods**

Female C57Bl/6N mice were laparotomized and the small intestine was compressed between two cotton wool swaps three times in antegrade direction. For control mice were laparotomized or underwent no surgical procedure.

Blood samples were collected 3h, 6h, 24h or 72h following the surgical procedure.

IL-6 levels were determined by cytometric bead array (BD). Corticosterone levels were detected by ELISA (DRG). Data was analyzed by Graph Pad Prism.

## **3. Results**

Following SID IL-6 levels were significantly increased at each analyzed time compared to untreated or laparotomized mice, whereas at 24h there was no significant difference following SID compared to laparotomy ( $p=0,096$ ).

Corticosterone was elevated significantly 3h and 6h after SID (vs. untreated). In addition the corticosterone levels were increased 6h and 24h after SID compared to laparotomy only.

The highest absolute values of IL-6 and corticosterone levels were both measured 3h after SID.

## **4. Conclusions**

The data suggests that the severity of the trauma is correlated with the levels of IL-6 and corticosterone. Both show a similar time pattern and represent the degree of the immune dysfunction especially in the early phase after a surgical procedure.