

**P058** The age-related changes in the hippocampal concentration of interleukin-1 $\beta$  and interleukin-1 $\beta$ -induced signalling are attenuated by the synthetic corticoid, dexamethasone.

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Cellular dysfunction in the ageing brain is mediated in part by an increase in interleukin-1 $\beta$  (IL-1 $\beta$ ) concentration and its downstream signalling. Microglia, whose activation is amplified in the aged hippocampus, are thought to be the source of this increased IL-1 $\beta$ . In this study, we examined the actions of dexamethasone, a synthetic glucocorticoid which has anti-inflammatory effects, in the hippocampus of aged and young rats. Dexamethasone (1 $\mu$ g/ml) was administered for 2 weeks in the drinking water of male Wistar rats, aged 3 and 22 months old. Assessment of microglial activation by immunohistochemistry showed an increase in CD11b-positive staining in the aged hippocampus compared to the young rats; treatment with dexamethasone attenuated this age-related change. IL-1 $\beta$  concentration, assessed by ELISA, was augmented in the hippocampus of aged, compared with young rats. Downstream mediators of IL-1 $\beta$  signalling such as c-Jun N terminal kinase, caspase-3 and poly (ADP)-ribose polymerase were increased in the aged compared with young, rats. The effect of dexamethasone treatment on this signalling paralleled its effect on microglial activation thereby demonstrating its anti-inflammatory effect in the aged hippocampus.