Comparative study of upper respiratory passages

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1. Throughout this investigation eighty nine albinorats of differeJ:;lt age groups ranging from one week totwenty four months and of both sexes were utilised.The animals were sacrificed, then the adrenalsremoved, fixed immediately in buffered potassium dichromate(pH 4.2) solution. Paraffin sections were cutserially at six microns, and SUbsequently stained witheosin yellow-anUine blue mixture.The cortex appeared bluish in colour, while theadrenomedUllarycells appeared to be of two tr,ypes: Theadrenaline secreting cells formed the majority and appearedbrownish to purple in colour with a granular cytoplasmand bluish nucLed, The minority were of the noradrenalinesecreting type and appeared yellow in colour;rl.th coarsely granUlar cytoplasm and bluish nuclei.2. Applying the methods of Dornfeld et al. (1942)tAbercrombie (1946) and Boseila et ala (1971), the numberof the two adrenomedUllarycells and the adrenal medUllaryvolumewere estimated.3· Whencomparing the results for left and rightsidedadrenal glands of the same animal, they were foundto diff'er, but the difference was statistically nonsignificant.Concerning the sex of the animal, there was nostatistiCally significant difference in the numberofadrenaline and noradrenaline cells, except at the age ofthree months.As the adrenal medullary volumeis concerned, thedifference in both sexes was only marked at the ages oftl2ree months and at senility.4-. At the age of one week, theJ;'ewas no differentiationbetween the two types o~ adrenomedullary cellsnor between the cortex and medulla.5· At the age of one month, distinct differentiationof the cortex from the medulla was obtained, whilethe differentiation between the two types of the adrenomedullarycells was still out of our approach.,The meanvolumeof the adrenal medulla for thefemale was greater than in the male but the differenceproved to be statistically non significant_6. At the age of three months distinc t differentiationof the two types of adrenomedullary cells, enabledUs to COWltthem and the medullary volumecould bedetermined as well.'tlhemeannumbersof adrenaline and noradrenalinecells were higher in the female than in the male ratsand the differenoe proved to be sf;atistically significant.However,the meanadrenal medullary volumein the femalewas greater than that of the male. also this differenceproved to be statistically signifioant.7· At the age of six months, the meannumberofadrenaline cells in the female was less than that of themale. although the meannumberof noradrenaline cells inthe female was greater than the male, but these differencesproved to be statistiCally non significant. ..The meanadrenal medullary volumefor the femalewas greater than the male, the difference proved also tobe atatistically non significant.8. In the rats aged one year, the meannumbers oradrenaline and noradrenaline cells in the female

were- 168 -l7’eater than in the male, but the difference proved to bestatistiCally non significant.The meanadrenal medullary volumeof the female wasgreater than in thG male and such difference proved alsoto be statistically non significant.9. In the senile rata (two y·~m.:eold) ~ the meannumbersof adrenaline and noradrenaline ceLLa in the femalewere l7’eater than in the male, but the dU’:t”erenceprovedto be statistiCally non significant.HoweverI the meanvolume of the adrenal medulla ofthe female was greater than in the male and this differenceproved to be statistiCally significant.10. Comparingthe results of cell counts and adrenomedullary volume of rats aged sdx months, one year and twoyears to the results of adult rats aged three months.Tho counns and the volumes showedan increase, and thisincJ:ease proved to be statistiCally significant and highlysignificant (p = 0.05 &P = 0.01).The ratio of adrenaline cells to noradrenaline cells.reRsin/u!;pon age~.11. In the ope:L’atedfemale animals. the numberofadrenaline cells increased and that of the noradrenalinecells decreased than in the female controls. The incre~in the numberof adrenaline cells. however.proved to bestatistically non significant, while the decrease in thenumberof noradrellaline cells proved to be statisticallyhighly significant (p = 0.01).In the operated male rats. the meannumberofadrenaline cells increased and that of noradrenaline cellsdeereased. The inorease in the numberof adrenaline oellsproved to be statistically highly significant. while thedecrease in the numberof noradrenaline cells proved tobe statistically non significant.Themeanadrenomedullaryvolumeof the female andmale increased after unilateral adrenalectomy, such anincrease in the size of the adrenal medulla in the operatedfemale rats proved to be statistically significant.while for the operated.male. it waspro’1’ed ’to be sta.tisticallyhighly signifioant.