Histamine release from lung tissue of the rat induced by bee venom fractions and compound 48/80

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Two bee venom fractions, F I and F II, obtained by gel filtration (Fredholm, 1966), and compound 48/80, were shown to cause histamine release from minced lung tissue of the Sprague-Dawley rat. F I is the phosphatidase A containing fraction, and F II is a basic polypeptide (isoelectric point 12.25) with a molecular weight, according to the elution pattern on Sephadex, between 1,000 and 5,000.

The threshold concentration for histamine release was about 1.0 μg/ml. for all three agents. The dose-response relationship, the time course of the release, and the influence of metabolic inhibitors on the release process were investigated. It is apparent from the results that the mechanisms of action of F I and F II differ fundamentally. F I caused a slow release, not completed in a 3 hr incubation period, and its effect could not be blocked by metabolic inhibitors. These observations are compatible with the assumption that the effect of F I is due to its content of phosphatidase A, which hydrolyses tissue phosphatides to lyso compounds. The action of F II, on the other hand, resembled that of compound 48/80, in that the release process took place at the same, rapid rate, and that it could be blocked by metabolic inhibitors and by heating the lung tissue at 45° C prior to the incubation.

The possible relationship between F II and previously known bee venom components is considered, and it is concluded that this factor has properties different from those of earlier described bee venom fractions.

REFERENCE

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Studies of the influence of some psychotropic substances on the grooming behaviour of white mice

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Groups of mice were given orally the test substances or the solvents (0.9% NaCl or metocel), respectively. Immediately after the administration of the drugs the animals were put in a covered jar, the bottom of which was covered with pulverized charcoal. Shaking the glass completely blackened the animals. Afterwards the animals were placed with forceps into macrolon cages whose bottoms were covered with paper. At intervals of 1.5 to 6 hours the intensity of blackening and its pattern were noted and graded according to a three point scale: 1 = white to light grey, 2 = medium grey, 3 = dark grey to black. The results were registered on cork stamp models of a mouse on a protocol formula. For statistical analysis the lightest grey-grades of six defined fields of the mice were added and compared with the controls by a ranking-test.

In all control groups, together with those groups that received test substances, we obtained the following distribution of grey values.

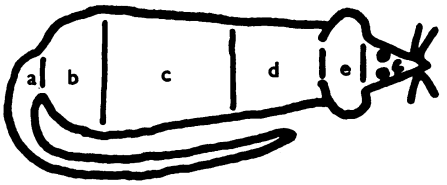
The following grooming movements were observed: (1) shaking of all the fur; (2) grooming movements of head and neck with the forelegs (washing); (3) licking of breast, body side and base of the tail; (4) scratching of side and back with the hind limbs.

The early cleaning of the naso-oral region and the shaking to reduce the staining of the fur are characteristic. The tail remains uncleaned for the longest period of time. The sacral area and the area between the ears are also poorly cleaned. The results of the two control substances (metocel and 0.9% NaCl) show a good agreement, indicating that metocel has no pharmacodynamic effect. On the other hand, the data vary relatively widely, making it necessary to use sufficient great amounts of control animals.

Table 2 demonstrates that administration of the test substances was associated with a significant inhibition of all the grooming movements compared with the control groups of the same experiment. Amitriptyline, chlorpromazine, haloperidol and metronidazole were effective in doses less than 1/10 of LD5. Specific changes of the grooming patterns could not be observed.

The main advantage of this test is that by providing a releaser to the instinctive grooming movements in the form of charcoal, the difficulties encountered in testing of weak sedatives are reduced. Such weak sedative effects on, for example, motility are often overshadowed by the reduction of motility occurring after the first phase of orientation in a new environment. By this test it may be possible to observe the changes of normally progressing behaviour such as grooming movements.

TABLE 1. *Distribution of grey-values in controls*



NaCl
$n=74$

	1.5						3						
	a	b	c	d	e	f		a	b	c	d	e	f
3	33	13	12	6	15	0%	3	18	7	4	0	4	0%
2	67	58	39	34	58	4%	2	77	50	32	14	35	3%
1	0	28	49	60	27	96%	1	5	43	64	86	61	97%

	4.5						6 hr						
	a	b	c	d	e	f		a	b	c	d	e	f
3	7	4	3	0	0	0%	3	5	4	3	0	1	0%
2	81	39	19	1	15	1%	2	67	30	7	1	12	0%
1	12	57	78	99	85	99%	1	28	66	90	99	87	100%

Metocel
$n=45$

	a	b	c	d	e	f		a	b	c	d	e	f
3	29	11	7	5	11	0%	3	16	2	0	0	0	0%
2	67	53	38	33	53	5%	2	75	56	22	22	44	2%
1	4	36	55	62	36	95%	1	9	42	78	78	56	98%

	a	b	c	d	e	f		a	b	c	d	e	f
3	11	0	0	0	0	0%	3	3	0	0	0	0	0%
2	69	40	11	9	31	0%	2	76	21	10	3	24	0%
1	20	60	89	91	69	100%	1	21	79	90	97	76	100%

TABLE 2. *The marks in the tables how the quantitative difference of the sum of grey-values of treated groups (n=5), against the control groups (n=7), respectively.*

Substance	LD50	LD5	Dose	Hours 1·5	3	4·5	6
Imipramine	540	330	83	−	−	+	−
			41	−	−	−	−
Desipramine	500	325	81	+	−	−	−
Trimipramine	500	305	76	+	+	+	+
			38	−	−	−	−
Amitriptyline	305	202	51	+	+	+	+
			26	+	+	+	+
			13	−	+	+	−
			7	+	−	−	−
Nortriptyline	387	177	44	+	+	+	+
			22	+	−	+	+
			11	−	−	−	−
Chlordiazepoxide	707	552	125	+	+	+	+
			63	−	−	−	−
Iproniazid	681	490	245	−	−	−	−
Dexamphetamine	48	24	12	−	+	−	−
			6	−	−	−	−
Chlorpromazine	875	538	8	−	−	+	+
			4	−	−	−	−
Haloperidol	354	155	2	+	+	+	−
			1	−	−	+	−
			0·5	−	−	−	−
Acetylsalicylic acid	2,121	1,000	125	−	−	−	−
Metronidazole	>1,000	>1,000	500	+	+	−	−
			250	+	+	+	−
			125	+	−	−	−
			63	+	−	−	−
			31	+	−	−	−
			16	−	−	−	−

Significant inhibitions of grooming movements are marked +, unsignificant changes −.

Acid-base changes in blood and electrolyte secretion during pancreatic function

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In humans, gastric acid secretion is accompanied by an increase in base in arterial blood (Rune, 1967). This demonstration shows that there is a decrease in base in arterial blood following bicarbonate secretion by the pancreas. Patients were studied during routine pancreatic function tests involving duodenal aspiration of juice before and after secretin stimulation, blood bicarbonate determination being made from pCO_2 and pH measurements on arterial or venous blood. Overall, in seventeen normal patients there was a significant fall in base excess following secretin, whereas there was little or no fall in six patients with chronic pancreatitis.

Little is known of electrolyte secretion by the pancreas. Particular attention has recently been paid to calcium and magnesium secretion following a report of increased calcium secretion in chronic pancreatitis (Hansky, 1967). The demonstration will show the results of studies on pancreatic secretion of calcium and magnesium following secretin stimulation in normal persons and patients with pancreatic disease.

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