(a) Einen erheblichen Strahlenschutz bewirken: 5-Hydroxy-tryptamin, 5-Hydroxy-ω-N-monomethyl-tryptamin, 5-Hydroxy-ω-N-monoäthyl-tryptamin, 5-Methoxy-tryptamin. Zwischen dem Ausmass des Schutzeffektes dieser Verbindungen bestehen keine statistisch gesicherten Unterschiede.

(b) Zu einer nur geringen, aber statistisch signifikanten Verlängerung der mittleren Überlebenszeit führen: 5-Benzyloxy-tryptamin, 4-Hydroxy-tryptamin.

(c) Unregelmässige oder gar keine Schutzwirkung besitzen: 5-Hydroxy-ω-N-acetyl-tryptamin, 5-Hydroxy-ω-N,N-dimethyl-tryptamin, 5-Hydroxy-β-methyl-tryptamin, 5-Hydroxy-β-dimethyl-tryptamin, 1-Methyl-5-hydroxy-tryptamin, 4-Hydroxy-ω-N-monomethyl-tryptamin, 4-Hydroxy-ω-N,N-dimethyltryptamin, 4-Hydroxy-α-methyl-tryptamin, 6-Hydroxy-tryptamin, 7-Hydroxy-tryptamin.

Die noch reaktionsfähige endständige Stickstoffgruppe, die freie Seitenkette und der integre Indolring einerseits sowie eine – kurzgliedrige – Substitution in Stellung 5 andrerseits scheinen Voraussetzung für die gute protektive Wirksamkeit dieser Stoffgruppe zu sein. Diese Befunde stimmen gut mit der Annahme überein, dass bestimmte sterische Bedingungen (GREENBERG[8]) für die Anlagerung des schützenden Oxytryptamins an das strahlensensible Makromolekül erfüllt sein müssen. An der Strahlenschutzwirkung der Serotoninabkömmlinge könnten demgemäss recht wohl die von FLEMMING[9] in Betracht gezogenen Energiewanderungs- und -verteilungsvorgänge beteiligt sein, die durch die π-Elektronen ihrer aromatischen Struktur ermöglicht werden.

Summary. The radioprotective action of some further oxytryptamines is investigated and the structure-activity relationship discussed. Deseril which neutralizes the protective effect of oxytryptamines, does not impair the radioprotective properties of cysteamine, tyramine, histamine or noradrenaline.

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Studies on the Virus Neutralizing Capacity of Anacid Gastric Juices

It was found previously that the gastric juices of achlorhydric subjects agglutinate red cells sensitized with coli antigen[1]. The agglutinating titer of the investigated gastric juices depends primarily on the homologous antibody level of the serum. On the basis of the above results, the question arose whether the gastric juice of achlorhydrics contains substances possessing a virus-neutralizing effect or not.

The neutralization tests were carried out against the three types of polio-viruses (Mahoney, MEF_1, Saukett) on HeLa tissue culture with sera, saliva and gastric juices, collected simultaneously from the same achlorhydrics. A volume of 0.1 ml of the samples was incubated with the same volume of virus at 37°C for 4 h and kept overnight in the refrigerator. The neutralizing effect of the sera were tested against 100 CTP_{50} and in the case of gastric juices and saliva against 10 CTP_{50} pro 0.1 ml. The tests were evaluated on the third and seventh days.

The results obtained are shown in the Table. It can be seen that the achlorhydric gastric juices and the saliva possess a capacity to neutralize the cytopathogenic effect of poliomyelitis viruses. The presence and the degree of this capacity, however, depends at least to a certain extent on the homologous virus-neutralizing antibody level of the sera. If no virus-neutralizing antibodies were present in the sera, the gastric juices could not neutralize the cytopathogenic effect of the viruses. After vaccination with the polio-virus, an elevation of the homologous antibody titer of the sera was observed which ran parallel with the elevation of the neutralizing capacity of the gastric juices.

In the concentrated gastric juice of achlorhydrics, immune-globulins could be detected with paper-electrophoresis. The Figure represents the electrophoretic pattern of the concentrated gastric juices of an achlorhydric patient. The concentration procedure was carried out according to ISHIMORI and GLASS[2].

On the basis of the above results, it can be supposed that the virus neutralization in the achlorhydric gastric juices is caused by virus-neutralizing antibodies.

This virus-neutralizing capacity of the gastric juices may contribute to the defence mechanism of the achlorhydric subjects against enteropathogenic virus infection. The lack of the acid-producing ability renders possible the appearance and the action of the immunologically active substances in the stomach. Our results suggest further the importance of the local antibodies of the gastrointestinal tract in enteropathogenic virus infections, as well as in the case of Sabin vaccination[3].

Gastric juices contaminated with blood or bile were discarded. The data represent the highest neutralizing dilutions of the samples. Not examined: —. The pH values of the achlorhydric gastric juices tested are between 6.2 and 7.8

No.	Virus neutralizing titer								
	Sera			Gastric juices			Saliva		
	Mahoney	MEF_1	Saukett	Mahoney	MEF_1	Saukett	Mahoney	MEF_1	Saukett
1	32	64	4	2	2	2	0	2	0
2	—	—	—	0	0	0	0	0	0
3	16	64	8	0	0	0	—	—	—
4	32	16	16	0	0	2	0	8	0
5	—	—	—	0	2	0	0	2	0
6	128	4	4	16	0	0	32	0	0
7	64	0	2	16	0	0	8	0	0
8	16	8	128	0	0	2	—	—	—
9	256	32	16	2	2	4	2	4	2
10	—	—	—	8	0	4	—	—	—
11	8	0	0	8	0	0	—	—	—
12	—	—	—	16	16	0	—	—	—
13	64	16	16	16	0	4	4	0	0
14	256	16	16	64	4	0	4	4	0

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[3] Our thanks are due to Dr. K. BOLDIZS and É. ÁGOSTON for their valuable help.