

Role of the Liver in Enteral Insufflation of Oxygen during Hypoxia in Infant Rats

IN 1916 Yllpö suggested insufflation of the intestine with oxygen as a means of resuscitation of asphyxial new-born infants. Since that time this method has been used clinically, but opinions as to its value are not undivided. In recent years the method has been revised experimentally. Again results are not equivocal¹.

It has been shown that the oxygen saturation of the blood in the portal vein increases after enteral insufflation with oxygen in both adult and new-born animals (rabbit, rat)^{2,3}. Oxygen saturation in the blood of the caudal vena cava centrally to the orifice of the hepatic vein, however, is not raised^{3,4}. It was concluded that oxygen absorbed from the intestine is utilized by the liver. It could further be demonstrated that previous administration of oxygen into the intestine increased the survival-time of new-born mammals suffering different types of hypoxia (altitude 0.1 atm., nitrogen, potassium cyanide) significantly as compared with control animals not so treated. After enteral oxygen insufflation in new-born animals a resuscitating effect in the stage of clinical death due to nitrogen hypoxia was also noted.

The idea was put forward that this beneficial effect of enteral oxygen insufflation is mediated by a humoral action of the liver as suggested earlier by Rein⁵. Hence a rough aqueous extract of minced liver tissue was prepared from normal rats and from rats insufflated with oxygen and also from animals that died in hypoxia. These extracts were given intraperitoneally to infant rats and the survival-time of these animals suffering different types of hypoxia was then tested. The results (Fig. 1) show that a normal liver extract slightly prolongs survival-time during hypoxia. This effect is increased with an extract from livers of rats which had first been given oxygen into the intestine. The extract is ineffective if obtained from infant rats

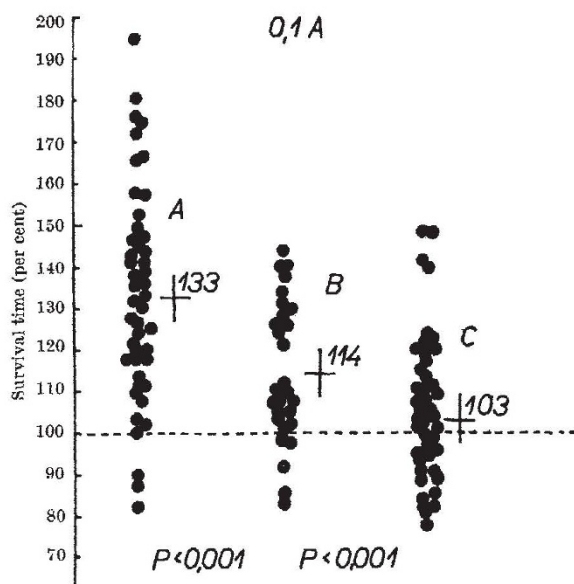


Fig. 1. Changes in the survival-time in hypoxia (0.1 atm.) as percentage after intraperitoneal application of a rough aqueous extract prepared from livers of rats from the same litter. 100 per cent is the average survival-time of control infant rats. A, extract from liver of animals insufflated with oxygen; B, the same from normal infant rats; C, the same from infant rats that died from hypoxia.

which died in hypoxia. The basis of this humoral effect is being analysed.

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Sex and Age Differences in Post-tetanic Potentiation

POST-TETANIC potentiation has been investigated by a large number of authors in animal muscles¹, but only rarely in other structures and in man. According to Peregrin², post-tetanic potentiation in man is in close relation to the action-rest phenomenon of Sechenov. We have examined in 319 children aged 10–16 the activation of dynamic (phasic) work of the hand following static strain of 15–20 sec; the same hand working thus without rest. A mercury dynamometer was used, the frequency of work being 1 contraction in 1 sec. Five contractions after the static strain were statistically correlated with the last five contractions before it. A statistically significant rise was observed in only half my 1,188 experiments (51.86 per cent girls, and 48.40 boys), which is markedly less than in the group of higher age studied by Peregrin.

There was a clear difference between the group of 13–14 years old girls and the group of boys of the same age, thus:

Distribution in the group (per cent)	Limits for P 0.05 (per cent)
girls 62.83	57.29–68.37
boys 54.80	47.08–61.53

In our groups of older children only the tendency of the described direction is present. A possible explanation is perhaps in connexion with earlier onset of fatigue in girls; fatigue for its part is necessary for successful activation^{3,4}.

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⁴ Shatenshtein, D. A. (1952), quoted in I. A. Bulygin, *Pavlov-Zschr. höh. Nerventätigkeit* (Berlin), **7**, 287 (1957).

Lowered Resistance to Iron in Vitamin-E Deficient Piglets and Mice

ADMINISTRATION of iron preparations to piglets is a routine procedure for prevention of anaemia. It is observed that some or most of the piglets in an occasional litter may develop symptoms of acute disease and die within some hours or days after the administration. The post-mortem picture is character-