

From this it follows, firstly, that the mesenchymal reactions and high blood pressure are not interlinked; hence, one factor responsible for the development of hypertension can be postulated and another responsible for the mesenchymal reactions. Both mechanisms are triggered off by the unilateral clamping of a renal artery. Secondly, removal of the contralateral kidney serves to promote both hypertension and pathological changes, besides which this additional intervention also produces a qualitative change in the type of hypertension affecting the animal. It can be assumed with certainty that an interplay, not merely of two, but of several elements is involved. The latter also include sex-specific elements, inasmuch as the principle or principles giving rise to the lesions are either antagonised by female or enhanced by male factors.

The mesenchymal reactions to the stimulus of a foreign-body and the degenerative vascular changes do not go hand in hand in every case—at least, where female rats are concerned—although both processes can be elicited by the same operative procedures. Differences in localisation might, among other things, have some influence in this respect; it is, in fact, already known from morphological studies that certain vascular beds, e.g. the kidneys, myocardium, and mesostenium, are particularly liable to develop lesions.

In unilaterally clamped female rats, the appearance of hypertension alters the reaction to a foreign-body inasmuch as the weight of the granuloma ceases to increase—but only if the contralateral kidney is retained. This is a fact which cannot be explained on the basis of present-day knowledge unless it be assumed that the conditions governing the growth of the granuloma are decisively modified either by the high blood pressure itself or by mechanisms—possibly of a peripheral vascular nature—which it elicits.

It is also not yet possible to say what factors may ultimately determine the change in mesenchymal reactivity. Furthermore, it is still an open question whether adrenal substances—either in a primary or only in a secondary capacity (e.g. via the parathyroid glands⁴³)—are responsible and whether the decisive factor is an excess or a deficiency of the regulatory principles in question.

In conclusion, it may be said that high blood pressure is not the only factor to be considered when approaching the problem of vascular damage in the syndrome of hypertensive disease. Histological studies and use of the foreign-body granuloma technique indicate a clear distinction between permanent hypertension and changes in mesenchymal reactivity, despite the fact that both symptoms can be provoked by applying the same experimental procedure. Vascular lesions such as are typical of experimental hypertension are also found in animals which have remained normotensive. The presence of high blood pressure does not necessarily go hand in hand with an increase in the severity or extent of vascular lesions. Sex-specific factors are also of importance, since females tend to show a more pronounced blood-pressure reaction, while males are more susceptible to vascular lesions, particularly of a sclerotic type. Where a renal artery is clamped, simultaneous extirpation of the contralateral kidney leads to a qualitative change in the type of hypertension involved.

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Zusammenfassung

Histologische Untersuchungen verschiedener Gefäßgebiete von renal hypertensiven Ratten zeigten keine Abhängigkeit der Gefäßschäden vom Verlauf des Hochdruckes. Typische Gefäßveränderungen für den experimentellen Hochdruck sind auch bei solchen Tieren zu finden, deren systolischer Druck trotz Einengen einer Nierenarterie nicht signifikant anstieg. Die Bindegewebsreaktion gegenüber einem Fremdkörper wird gesteigert. Es wird unterschieden zwischen Faktoren, die für die Hochdruckentstehung, und solchen, die für eine Umstimmung des Mesenchyms verantwortlich sind. Beide Prozesse können methodisch gleichartig ausgelöst werden. Es sind sexualspezifische Unterschiede vorhanden, da im allgemeinen Weibchen zu einer verstärkten Blutdruckreaktion, Männchen dagegen zu vermehrten Gefäßschädigungen neigen, besonders zu sklerotischen Veränderungen. Bei Klammerung einer Nierenarterie führt die gleichzeitige Exstirpation der zweiten Niere zu einer Änderung des Hochdrucks in qualitativer Hinsicht.

PROPOSITA

The Validation of Soviet Claims of Vegetative Hybridization in Animals

The program of the recently held International Genetics Symposia in Tokyo included several contributions from the Soviet Union. Of outstanding interest to animal geneticists was the paper of Professor H. F. KUSHNER, who, together with other material, presented data which presumed to demonstrate, that by means of blood transfusions it is possible to change the hereditary constitution of animals. Thus, in one experiment, White Leghorn chickens were induced to change their plumage to a black color and almost to double their weight after four generations of transfusions of blood from Black Australorps. Similarly, turkey blood transfused into chickens led to the production of plumage patterns characteristic of turkeys. Other means of successful modifications of heredity (by transfer of albumen from eggs of one breed to those of another, parabiosis of mammals, and gonad transplants) were also described.

It is obvious that should the experiments reported be found to be repeatable with purebred material outside of the Soviet Union or its allied countries, no geneticist anywhere would be able to ignore Lysenko theories. Hence, it should be of considerable importance to the Lysenko school of thought to facilitate repetition of the work under controlled conditions by workers who could not be accused of being under any sort of pressures to obtain one type of result in preference to another.

On the other hand, Western geneticists, somewhat skeptical of the conclusions reached by KUSHNER (though they were presented with apparent sincerity, eagerness to convince his listeners, and with friendliness rather than belligerency) would be justified in attempting repetition of his experiments, only if they had assurance

⁴³ D. LEHR and CONSTANCE R. MARTIN, 20th Int. Physiol. Congr. Abstr. of communicat. Bruxelles, 555 (1956).

that, in the case negative results were obtained (as, for instance, in the blood transfusion experiments carried out some 85 years ago by FRANCIS GALTON) it would not be possible to claim that their technique was at fault.

The obvious solution of the matter then is to invite Professor KUSHNER or one of his collaborators for a stay at some Genetics Department in the United States, Great Britain, Sweden, Switzerland or elsewhere outside of the Russian sphere of influence, place at his disposal all the material needed to perform the hereditary transformations, and have him demonstrate the actual techniques necessary to obtain the results he has described.

A year's stay should be adequate for the most exhaustive tests since, for instance, in the case of the Leghorn-Australorp transformation, even a single generation was enough to produce visible manifestations of hereditary modifications by blood transfusion. The costs of the experiments would be negligible because in those described a small number of birds was adequate for the demonstration.

Hence the only prerequisites for carrying out the proposed program would be (1) the willingness of some institution to provide the necessary facilities (there should be little difficulty in any of the countries mentioned), (2) funds to bring the invited scientist to the place of work and to maintain him there for a year (if the Soviet Union is unwilling or unable to provide them, perhaps, one of the appropriate National Research Councils or other organizations could be induced to contribute to this cause), and (3) the agreement by the Institute of Genetics of the Soviet Academy of Sciences (KUSHNER's affiliation) to cooperate in the proposed program.

Since the matter could most likely be settled by the procedure suggested, it would appear to be in the interest of the latter group to participate in the test outlined. Neither dignity of scientists, nor preoccupation with more important matters could be given as a reason not to take part in this program. The issue should be viewed as entirely a scientific one; no scientist sincerely convinced of the validity of his results would object to an opportunity to demonstrate directly to others how they were obtained.

It is hoped that some institution or University Department will rise to the occasion and enter into negotiations with the appropriate agencies of their own and the Soviet Government.

I. M. LERNER

University of California, Berkeley, November 19, 1956.

Zusammenfassung

Es wird vorgeschlagen, einen der Sowjetforscher, die über erfolgreiche vegetative Bastardierung von Tieren berichtet haben, einzuladen, seine Methoden in einem westeuropäischen, amerikanischen oder andern Laboratorium zu demonstrieren.

Congressus

TSCHECHOSLOWAKEI

Internationale Union für reine und angewandte Chemie

Internationales Symposium über makromolekulare Chemie, Prag, 9.–15. September 1957.

Sämtliche Anfragen sind zu richten an:
Organisationskomitee des Symposiums IUPAC, Technická 5, Praha 6, Tschechoslowakei.

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