DECENTRALIZED ANTIRABIC SERVICE IN BRAZIL

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The success of the immunization of animals against rabies and the evidence for the value of the method in *anima nobile*, in Pasteur's work, constituted a scientific victory and proved a benefit to a limited number of people. The foundation of the Pasteur Institute in Paris and the creation of similar institutes in the large centers of population elsewhere represented the first step towards an increase in the number of beneficiaries. This was still on a small scale, as the victims of rabid animals had to travel immediately and unexpectedly to a town where a Pasteur Institute was located and where they had to stay for about three weeks in order to undergo the preventive vaccination treatment. Difficulties of all sorts, particularly those of transportation and finances, prevented a wider application. As the Pasteur vaccine could not be preserved and had to be prepared daily and only for immediate application, it could not be mailed and its use was hindered by the problem of distance.

Further scientific work was necessary in order to obtain the preservation of the vaccine, while guaranteeing its safety and efficiency. The 1% phenolization of a 5% suspension of the brain and spinal cord of rabbits that had been inoculated with fixed rabies virus, yielded a vaccine of guaranteed safety and efficiency which permitted a transformation of the formula. Now it is the vaccine that travels and not the victim of a rabid animal. With this vaccine a larger decentralization is obtained. This result was first achieved by Claudio Fermi of the Sassari Institute in Sardinia. His process was followed by a number of changes, one of the more important being the Semple method. This was well received on account of its simplicity, although it proved to be somewhat less efficient that the original Femi method. The value of the decentralized antirabic service has been demonstrated by the writer in his institution in São Paulo.

In May 1930, the Instituto Pinheiros of São Paulo started an antirabic service in the following form: (a) the physician in the locality where the patient lives requests the first doses by telegraph or telephone; (b) he receives at once 1 box with 6 doses of vaccine; (c) he fills up a form giving an account of the accident, and mails it back to the Institute; (d) the Institute classifies the case according to its severity and makes further periodic remittances of 6 dose-lots of recently prepared vaccine.

In the very remote towns, the Institute keeps for emergency purposes, preferably in the local hospital, in a refrigerator, a small amount of vaccine, valid for 4 months, in order to begin the treatment without delay. These are the so-called Antirabic Stations, which act as follows: (a) on beginning the treatment, the Station sends the information required; (b) by return mail, a box of fresh vaccine to be used for future treatment is received in substitution of the old one, to-

gether with the doses necessary for continuing the treatment of the case on hand; (c) whenever the time limit of a vaccine has expired at a Station, immediate substitution is made. These stations in very remote towns, where communication with the Institute is difficult, are in contact with intermediate stations, which receive recently prepared vaccine every week, and which are able to determine the severity of the cases and provide for the continuation of treatment.

GENERAL STATISTICS

	May 1930 Dec. 1932 6% vaccine	Jan. 1933 Apr. 1940 5% vaccine	May 1940 Jun. 1942 4% vaccine	May 1930 Jun. 1942 TOTAL
1—Fermi method (vaccine of from 24 hours to 4 months, maximum validity, rarely reached, however, as small batches are prepared twice weekly)				
Dosage for cases as follows:				
a) benign—12 injections	33	675	197	905
b) moderately severe—18 injections	574	5,270	1,312	7,156
c) severe—24 injections	28	1,399	1,147	2,574
d) very severe—30 injections	0	293	309	602
abandoned treatment	0	14	18	32
2—Number of persons treated	695	8,238	3,140	12,073
Cases studied in detail	635	7,651	2,983	11,269
Cases with incomplete information	60	587	157	804
3—Classification, according to the species of the biting animal:				
Dog	559	6,616	2,544	9,719
Cat	69	758	319	1,146
Ox	2	110	54	166
Ass	1	47	10	58
Monkey	3	12	20	35
Goat	0	32	3	35
Pig	1	21	11	33
Fox	0	4	3	7
Raccoon	0	4	0	4
Sheep	0	1	0	1
Cat and dog	0	1	0	1
Irara (carnivorous Brazilian mammal)	0	0	1	1
Man	0	45	81	63

The number of Antirabic Stations on June 30, 1942, was 205, one of which is situated in the Capital of the Republic of Paraguay. From May 1930 to June 30, 1942, 12,073 persons were treated through the Pinheiros Institute at São Paulo, 695 with a vaccine of the Fermi type in a 6% suspension, with 1% phenol; 8,238 with a 5% suspension; 3,140 with a 4% suspension. Real failures (deaths) repre-

sented 0%; apparent failures 0.024%; neuroparalytic accidents 0.008%; shock immediately following one of the injections, but of a passing character and without after-effects 0.19%; mild shock 0.06%; general reactions 0.08%.

The work done shows once more the necessity of having the treatment given under the supervision of expert lyssologists, and therefore by antirabic institutes, the application of the vaccine being made by local physicians when cases occur in distant towns, or at an Antirabic Station.

The decentralized service, along the lines established by the Instituto Pinheiros and here described, solves the economic aspect of antirabic vaccination. This assumes capital importance in a vast country like Brazil, where communications are difficult and salaries low. The solution of the economic problem means a high social achievement, as it makes the benefits of science available both to the well-to-do individual and who can leave his town and stay for weeks under treatment in a town where there is a Pasteur Institute, and to the penniless patients who cannot afford traveling to the place of treatment indicated.

LA ENSEÑANZA DE LA MEDICINA HOY DÍA*

Informe del Presidente del Consejo de Enseñanza Médica y Hospitales de la Asociación Médica Americana

Por el Dr. RAY LYMAN WILBUR

¡Grandes en verdad son estos días para la medicina! Por todos lados observamos los beneficios derivados de la medicina científica, de la investigación médica y de la enseñanza concienzuda de la medicina. Las técnicas dedicadas a la prevención de las enfermedades son puestas en vigor para proteger a millones de hombres y mujeres que visten el uniforme militar. Los desiertos de Africa y las malezas de las islas del Pacífico Sur han creado nuevos riesgos para nuestros ejércitos, riesgos éstos que hubieran resultado casi insuperables de no haber poseído conocimientos exactos acerca de la fiebre amarilla, la tifoidea, la disentería, la malaria y otras dolencias causadas por microorganismos que pueden vivir en nuestros cuerpos, destruyéndolos o lesionándolos. Para los nuevos procedimientos dedicados a la profilaxis y curación de las infecciones, las nuevas técnicas quirúrgicas y los nuevos métodos que permiten clasificar a los soldados en grupos idóneos para diferentes tipos de servicio, hay que contar invariablemente con los hombres y mujeres preparados en nuestras escuelas de medicina y nuestros hospitales. La nutrición se ha convertido en una disciplina colectiva

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