UMBILICAL TETANUS *

J. Senecal, M. D. ** and G. Senghor, M. D.

Umbilical tetanus, which has practically disappeared in some parts of the world, is still one of the chief causes of infant mortality in many other regions. Thus, in Dakar alone, 120 cases of neonatal tetanus were recorded in the pediatric wards during 1953. All of these were children born in the city. This is a very serious matter since, despite therapy, the mortality rate in this disease remains at 85 per cent. In 1953 it accounted for the death of one per cent of all the newborn infants in Dakar.

This problem is widespread in many regions of Africa, as well as in other countries, and has aroused great interest among large numbers of doctors all over the world who are eager to know the best means of combating it. The purpose of this paper, therefore, is to present the results of our experience in Senegal.

We will not dwell on the therapy of diagnosed cases. We have mentioned the ineffectiveness of therapy, as is seen from the high mortality rate, and this despite all the facilities that a specialized service can provide, functioning in privileged conditions very superior to those in the rest of the country. In spite of the use of various drugs, from antitoxin and sedatives to cortisone, and in spite of good nutrition and, especially, well - conducted hydration, our results have not been good.

We should try then to prevent the disease and not to direct our efforts toward therapy alone, which the youth of the patients and the short incubation period of the disease make so difficult.

Four methods for the control of this scourge can be considered :

1. Maternity Centers.

The first is the establishment of maternity centers in sufficient numbers to make possible the control of all deliveries, with the infants remaining under the care and observation of specialized personnel for at least ten days after birth.

---

* Paper presented at the Second Middle Eastern - Mediterranean Pediatric Congress, Ankara, 1961.

** Professor of Pediatrics. Director of the Institute of Social Pediatrics, Dantec Hospital, Dakar, Senegal.

The tetanus cases observed in Dakar do not come from among the children born in maternity centers who are given preventive injections of tetanus antitoxin. These tetanus cases are the result of deliveries carried out in houses, huts, or even on the ground, without any sort of proper hygiene. The construction of additional maternity centers would, therefore, constitute great progress but the realization of this will be in the future. A considerable amount of money will be needed for the construction of buildings, and the training of necessary personnel will have to be carefully planned. Because of the amount of time and money involved, this solution to the problem of neonatal tetanus can only be considered for the future. It should however be one of the first considerations of the government in any developing country.

2. *Education of Midwives.*

Since most of the tetanus cases come from deliveries carried out at home by traditional midwives, it is logical to think of teaching a minimum of hygiene to these women. Most obstetricians have witnessed, all too often, the deplorable results of an untimely and uncalled for intervention by these midwives, and as a result are firmly set against measures of this kind. But reality must be faced. For many years to come the number of proficient midwives will be insufficient to cover the needs of the country and many a delivery will be carried out far from any qualified assistance. The duty of the public health doctors is, therefore, to profit from the availability of these well-meaning women who assist «naturally» in 80 per cent of the deliveries.

Even after having set forth this principle, however, it must be realized that it presents some difficulties. Usually the midwives are old, ignorant and stubborn in their adherence to traditions which are dangerous. We must, therefore, choose carefully the ones to instruct.

The teaching program for these midwives must be adapted to their very low level of knowledge and reduced to the essential rules of hygiene : washing one's hands, using clean clothes and linen, using boiled water and soap, etc. On the technical side they should be advised not to interfere with delivery and should be taught nothing but the tying of the cord and the use of the proper umbilical dressing.

In cities, as well as in the country, active midwives can be found who are not unintelligent (illiteracy does not mean idiocy) and who are, very often, wives of chiefs who have great authority with the

population. The Republic of Senegal is attempting the systematic training of these well - intentioned midwives and the results are encouraging. Some of the selected midwives are sent to the nearest maternity center or to the maternity center of the principal town of the region, where they stay for three months. During this time they receive compensation but on their return home they work without any remuneration from the government. In fact, they are proud of the role which has been given them and they usually receive presents from the family of the new mother. As to the government services, they secure some control by supplying the midwife with a bag of labor materials which she comes to renew after the delivery of a child, often bringing the newborn infant with her. This provides for the birth registration of the child. This measure is patently just a makeshift arrangement until such time as auxiliary government personnel can be trained for this work.

This method has had some success in combating tetanus, but in Dakar it did not result in the complete eradication of umbilical tetanus as we have seen. In fact, even if the midwife respects the rules of hygiene, often the family intervenes and remakes the dressing in the traditional manner, that is by putting a plaster of earth and ashes over the umbilical stump! The education of midwives, therefore, should be supplemented by instruction in hygiene for all women and even for the whole population. This has been planned in Dakar but, again, it is something which will not be accomplished until sometime in the future.

3. *The Preventive Injection of Tetanus Antitoxin for the Newborn.*

The injection of tetanus antitoxin during the first few days of life is an effective method of preventing tetanus. When it is systematically carried out there is no tetanus. Recently we witnessed an unfortunate proof of this fact : a maternity center in Dakar, having been out of antitoxin for 15 days, had two cases of fatal tetanus in children, born at the center, who were contaminated after their discharge. The injection of 1500 I.U. is recommended and the use of a plastic ampule - syringe prevents tampering with the serum. This method has the inconvenience of potentially sensitizing the child immediately after birth but this is of small consequence compared to the risks the child faces if he does not receive antitoxin. This method is especially difficult to use in rural areas, Applied systematically in Dakar and facilitated by the education of the midwives, it has lowered

the tetanus morbidity by 95 per cent. Encouraged by these results, we wanted to make this method of immunization universal by making it obligatory for the women, especially those with family allotments, to bring their children for immunization during the three days following birth. This resulted in women walking up to 10 kilometers in the dust and heat in order to bring their children to the nearest dispensary. This method, therefore, is not yet applicable in the outlying regions.

The injection of delayed absorption penicillin as a preventive has its disadvantages. It risks sensitizing the child to this antibiotic; it is poorly absorbed by the newborn and, finally, even in our limited experience we have seen a case of tetanus despite the use of penicillin.

4. *Antitetanic Immunization of Pregnant Women.*

Pregnant women can be safely immunized between the third and fifth months of pregnancy and a booster shot at eight months stimulates increased production of antibodies. The passage of antibodies through the placenta is good and the rate is generally sufficient for the protection of the child. However, experiments in progress at present lead us to think that the passage of antibodies is not constant and this raises the question of the physiology of the placenta. Moreover, this method of immunization is difficult to apply to all the pregnant women of these regions. The day when it will be possible to immunize on such a large scale will be that on which there exists such a broad plan of medical service and such a high standard of living for the general population that umbilical tetanus will be one of the rarest of diseases.

The first step in this direction should be the systematic immunization of young girls which would permit protection with a simple booster shot at the time of pregnancy.

Conclusion

In our experience, there is no simple and efficient method at present to prevent umbilical tetanus in countries which do not yet have some sort of organized medical service. In cities and in well-equipped maternity health centers, a preventive injection of antitoxin gives good and immediate protection for the newborn.

In future, umbilical tetanus should begin to disappear as the result of public health measures aimed at reducing maternal and infant mortality. The solution may be the creation of a network of small maternity centers directed by personnel capable of applying simple preventive measures, such as immunization, and of carrying out the teaching of hygiene and sanitation.

TURKISH PROVERBS

Derdini saklayan derman bulamaz.

One who hides his trouble will not find a cure for it.

Hastaya bakmaktansa hasta olmak yeğdir.

It is easier to be sick than to look after the sick.

Gençliğin değeri bilinse ihtiyarlıktan şikâyet az olur.

He who takes care of his youth will have few complaints in old age.

Emzik şişesi hekimlerin iradıdır.

The baby's bottle is a source of doctors' income.