LINGUAL APPLICATION OF EUMYDRIN IN THE TREATMENT OF CONGENITAL PYLORIC STENOSIS

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A growing interest in the conservative treatment, and especially in eumydrin treatment, of congenital pyloric stenosis seems to have been aroused among British paediatricians by Svensgaard's article in this journal (1935). This treatment has been widely used in Germany and Scandinavia for many years. All those who have employed eumydrin in congenital pyloric stenosis agree that it is usually effective. There is, however, no agreement as to the requisite dose nor as to the mode of application of the drug (Braithwaite, 1937 ; Dobbs, 1939 ; Vertue, 1939).

Before eumydrin was introduced by German physicians, atropine or papaverine was the remedy of choice in the conservative treatment of pyloric stenosis on the Continent and in Scandinavia. These drugs were given by mouth in aqueous solution and in varying doses, and toxic symptoms were rather frequent. Another important disadvantage was the rapid destruction of the drug when dissolved in water. In 1925 Lindberg called attention to the fact that alcoholic solutions of atropine kept their strength and were much more durable than aqueous solutions. Lindberg recommended the use of such alcoholic solution in preference to an aqueous one. In the same article Lindberg recommended giving the alcoholic solution of atropine perlingually instead of by mouth. In Sweden we immediately followed this advice, but in the other Scandinavian countries paediatricians seem to have continued with aqueous solutions given orally.

When eumydrin was introduced, we abandoned atropine and applied the less toxic eumydrin in the same way as we had used atropine; a 0.6 per cent. alcoholic solution of eumydrin (eumydrin 0.3+concentrated alcohol 50) contains approximately 0.1 mgm. eumydrin in each drop. A drop of this solution placed on the surface of the tongue is rapidly absorbed and the treatment and absorption are not interfered with by the vomiting. The doses employed at the Gothenburg children's hospital have been rather small in comparison with the amount of eumydrin given orally in aqueous solution. It has been usual to begin with 1 to 2 drops (0.1 to 0.2 mgm.) daily and gradually increase the dose if necessary until the vomiting becomes less severe. The

earliest sign of toxic effect is a flushing of the face, and if this sign appears the dose is lowered. Usually the vomiting stops or diminishes in intensity before any toxic symptoms develop. It has seldom been necessary to exceed 0.3 to 0.5 mgm. eumydrin daily. This method of application of eumydrin has been employed as a routine treatment of congenital pyloric stenosis since 1928. The mortality rate of the Gothenburg infants suffering from this disease has been 1 per cent. during this period.*

The advantages of this method as compared with the oral treatment of eumydrin in aqueous solution are evident. In the latter mode of application a certain and variable amount of the drug is rejected by the vomiting and thus makes careful dosing impossible. When there is intense vomiting most of the drug is rejected before absorption; when the infant occasionally stops vomiting for a day or two and the same dose of eumydrin is used most of the drug given is perhaps absorbed. In this way it may happen that sometimes too much eumydrin is absorbed, and although this drug is far less toxic than atropine, it may cause serious intoxication and even death (Monrad, 1938). There is particular danger of this if the solutions are not frequently renewed. One teaspoonful of an old solution does not correspond to one teaspoonful of a freshly prepared solution. The old solution may have been weakened in its eumydrin effect by long standing, and the freshly prepared solution is much stronger, although both solutions originally were of the same strength. If an old solution is finished and the infant is given the same number of teaspoons from a freshly prepared solution and at the same time vomits less, a much larger amount of eumydrin is absorbed than previously, and thus the infant is liable to develop toxic symptoms.

By lingual application of a concentrated alcohol solution of eumydrin the dose absorbed is known and is independent of the severity of the vomiting, whilst the solution keeps its strength without obvious deterioration of the drug. It is clear that toxic symptoms can be prevented much more certainly in this way, and it is on this account that attention is being called to the method which is strongly recommended.

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* A communication from Prof. Wallgren, in reply to an editorial query as to the standards of diagnosis, indicates that although importance is attached to the palpation of the pyloric tumour, this is not regarded as the only reliable sign. He states that in his opinion radiological diagnosis is of the greatest value. (See Runström, G. (1939), *Acta Paediat., Stockholm*, **26**, 383.)