Toxic Effects following the Use of Local Anaesthetics

In the April number, page 172, we published an annotation on the dangers of butyn as a local anaesthetic. The subject is of such importance that we do not hesitate to return to it in view of the findings of the Special Committee of the American Medical Association appointed to investigate the toxic effects following the use of local anaesthetics, and organized by Dr. Mayer of New York, which has now issued its report in the Journal of the American Medical Association for March 25, 1924. With the exception of one case in which convulsions followed the use of cocain no serious consequences were noted as having occurred in ophthalmic practice. The report deals with no less than forty-three deaths, in two of which the Committee concluded that the local anaesthetic was only contributory to the cause of death. Five deaths followed the use of butyn alone or in combination with cocain. Two of these deaths followed within a few minutes after the application of a 5 per cent. solution of butyn to the nose. They point out that the use of butyn is still in the experimental stage and that caution in its use is indicated. The phenomenon of synergism in the use of local anaesthetics is apt to be overlooked, and some suggestive experiments by Ross and Gold on the action of epinephrin with cocain on the cat showed that the toxicity of the latter anaesthetic was greatly increased by the addition of small doses of epinephrin. The safest local anaesthetic for injection purposes appeared to be procain (novocain). The report contains a useful summary and a table of recommendations. In the latter they advise that cocain should not be injected into the subcutaneous tissue nor should it be used in the eye in strengths greater than 5 per cent. Epinephrin serves a valuable purpose in causing a bloodless field and in delaying the absorption of local anaesthetics, especially procain, but the addition of epinephrin in amounts of 1 mg. or more to an injection of cocain often results in a greater degree of toxicity than would arise from cocain alone when rapid absorption takes place; hence the use of larger doses of epinephrin with cocain is deemed unsafe, and epinephrin should not be used in greater concentration than 1 : 10,000 and of this not more than ten minims with cocain. Somewhat larger amounts of epinephrin may be used with solutions of procain, but not more than 1 mg. of epinephrin should be used, and even this dose may be unsafe in patients suffering with hyperthyroidism.

The report deals also at some length with the best antidotal measures and gives an analysis of the fatal cases investigated. It should be read in the original by all medical men who use and possibly sometimes abuse local anaesthetics.