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A REFERENCE HANDBOOK
OF
THE MEDICAL SCIENCES.

CHLORALAMID.—Introduced in 1889 by Professor von Mering as an hypnotic. It is formed by the combination of one part of formamide, CHO,NH_2, with two parts of chloral anhydride, CCl_3CHO. Its formula is $CCl_3CH,OH,CONH_2$, and would more correctly be named chloral-formamide, or formiate of chloral. The production of this compound is due to the efforts of chemists to introduce into chloral some known stimulant to overcome the depression of the circulation that accompanies the use of chloral. This von Mering thought he had accomplished, as, after absorption, chloralamid is decomposed by the alkalies in the blood into chloral and ammonium formate. The latter exercises a stimulating effect upon the heart and circulation. In addition to this absence of a depressing effect, other advantages over chloral are claimed: It is much less disagreeable in taste, and more soluble, characteristics which render it easy of administration. It is less irritating to the stomach, does not derange the digestive organs, and seldom causes headache, giddiness, or any disturbance of the nervous system.

It occurs in white crystals which have a faintly bitter taste and no odor, and are neutral in reaction. It is soluble in ten parts of cold water and in one and a half parts of alcohol. The salt should never be dissolved in hot water, nor heated above 120° F., as at that temperature it is decomposed. It is also decomposed by alkalies and alkaline carbonates. It is compatible with weak acids, which increase its solubility and render the solution more stable.

Chloralamid has not replaced chloral hydrate nor has it been very generally employed, as its advantages are not very evident. Whether it is less depressant than chloral hydrate or not, is a question that has caused much difference of opinion. Recent researches, however, seem to have shown that the formiate does exert a beneficial effect upon the circulation, especially when administered by the stomach. It is, however, not devoid of depressant action, and when introduced directly into the circulation, as in hypodermic use, it differs very little from chloral hydrate. In considering the differences between the two drugs, the relative proportion of chloral anhydride in each must be kept in mind, 1 part of the anhydride being present in 1.3 part of chloralamid and 1.1 part of chloral hydrate. With many it is thought that this difference in strength really represents the difference in action between the two drugs. It has also been found that chloralamid is less repidly absorbed from the stomach, which renders it more slow and gradual in its action.

Chloralamid is employed as a sedative and hypnotic in all the conditions in which chloral hydrate is indicated; notwithstanding its reputed safety when there is cardiac weakness, it is advisable to employ it in such cases with caution.

The dose advised when the drug was first used was from gr. xx. to xlv., and this has been very generally adhered to. The average dose employed is about gr. xxx. As a rule, it is advisable to begin with a smaller dose of gr. xv. to gr. xx., when the insomnia is not accompanied by pain or excitement. On account of its solubility in alcohol, chloralamid is easily given in solution diluted with some aromatic elixir. Brandy or whiskey is a favorite means and adds to its beneficial action. If alcoholic solution is not desired, dilute hydrochloric acid will be found to serve the purpose. It may also be given in cachets. For whooping-cough and other spasmodic affections, it is given in doses of gr. ij. every two hours. Enemata may also be employed when such a means of administering the drug is desired. The following formula is recommended for this purpose: chloralamid, gr. xiv.; dilute hydrochloric acid, gtt. iij.; alcohol, gtt. xx.; water, ʒ iij. *Beaumont Small.*

CHLORALIMID.—(Trichlor-ethyliden-imide), CCl_3, CHNH. This substance is obtained by the action of acetate of ammonia on chloral hydrate; it may also be formed by heating chloral ammonia. It is a crystalline acidular powder without taste, smell, or color, insoluble in water, soluble in alcohol, ether, and oils. It is not affected by heat or moisture. It possesses properties similar to those belonging to chloralamid, but is more active. As an hypnotic, it is given in doses of from gr. v. to xxx. It is introduced as a substitute for chloral hydrate and chloralamid. It has not the acrid taste of the former nor the bitter taste of the latter. In smaller doses it is said to have an antipyretic and analgesic action. This drug has not been used to any extent, and its superiority to chloralamid has yet to be determined. *Beaumont Small.*

CHLORATES. See *Potassium* and *Sodium*.

CHLORATES, POISONING BY.—When we speak of poisoning by chlorates we have in mind chiefly the poisoning by chlorate of potassium, of which there are already a goodly number of cases on record. It is, however, generally conceded that the poisoning is mainly due to the chlorate ion of this salt. We can also readily cause poisoning by the sodium chlorate, and it is even claimed that the ammonium salt is the most poisonous of all the chlorates. The greater frequency of poisoning by the potassium salt is due to its frequent use. On the erroneous supposition that the readily oxidizing potassium chlorate will give up oxygen to the tissues and fluids of the animal body, this salt was extensively employed throughout the entire nineteenth century as a therapeutic agent for all sorts of diseases (von Mering [1]).

It is, however, a noteworthy fact that, with a few exceptions, the record of poisoning by chlorate of potassium is practically not much older than the last two decades, *i.e.*, since the danger of this therapeutic agent was impressively brought to the minds of the medical profession by the writings of A. Jacobi [2] and F. Marchand [3] at the end of the seventies.

The first case on record is apparently that which occurred in Tulle, France, and which was described by Chevalier [4] in 1855. A man took 20 gm. of the salt for two days and died manifesting violent symptoms. This case attracted considerable attention, and was apparently the incentive for the toxicological studies of potassium chlorate which began in France earlier than in other countries.[5]