

prompt and ready means of controlling the spasm; when, however, uræmic paroxysms begin with drowsiness and gradually pass on to insensibility, or when convulsions occur as breaks in a continuously comatose condition, chloroform affords no prospect of relief.

Dr. Harley, although he recommends some form of anæsthetic in uræmic eclampsia, makes the statement that if medical men were more intimately acquainted with the powerful chemical changes which chloroform exerts on the constituents of the blood, even when taken into the system, by the lungs, they would probably employ it with more reserve than at present they do.

Sir James Simpson says that although the direct action of chloroform upon uræmia is doubtful, yet it is certain that in eclampsia chloroform is the best palliative, inasmuch as it moderates the paroxysms.

Although many authorities recommend the use of chloroform in uræmic eclampsia, few make mention of its employment in acute uræmia independent of the puerperal state. Its only known clinical effect is to control muscular spasm, and in a large proportion of cases it fails to give more than temporary relief to those patients who pass from one convulsion to another into a state of complete coma, and die without any apparent neutralizing or eliminating effect from the chloroform.

In the few cases in which I have administered chloroform in non-puerperal uræmic convulsions, it has seemed to me to have no other effect than to arrest convulsive movements by rapidly hastening my patient into a state of insensibility. In no instance have I known its administration to be immediately followed by diaphoresis, or a return of the urinary secretion; and it has seemed to me to be more difficult to establish diaphoresis or diuresis by diaphoretics or diuretics in patients with uræmia to whom chloroform had been administered, than in those who had not taken it. I believe, therefore, that while it temporarily controls muscular spasm, it prejudices the chances of ultimate recovery, by the changes its inhalation produces in the blood, which changes increase rather than retard the uræmic toxæmia.

With these impressions, one naturally seeks an agent that not only has power to control muscular spasm, but at the same time by its action shall tend to reopen the avenues of elimination, either by counteracting the effects of the uræmic poison on the nerve-centres, and thus facilitate the action of diuretics and diaphoretics, or itself act directly as an eliminator.

I believe morphine administered hypodermically to be such an agent.

This brings me to the question which has led me to this discussion this evening, viz.:

1. Can morphine, in full doses, be hypodermically administered to patients in acute uræmia without danger?

2. What are the effects which follow such administration?

If we turn to acknowledged authorities for an answer to the first of these inquiries we find that

nearly all make mention of opium only to warn us of the danger attending its administration. I will quote from a few of them. Dr. Harley states "that although Dover's powder may be given with impunity, opium can seldom be employed in kidney affections in any other form without a certain amount of risk. More than one example of its deleterious effects in such cases has come under my notice. In cases where there is a tendency to convulsion, even Dover's powder must be cautiously used."

Dr. Geo. Johnston states that Dover's powder may be given in Bright's disease, "when the bowels are freely open, the urine not scanty, and there is no headache or drowsiness. In other cases, opium, in any form, would probably be injurious, on account of its tendency to check secretion and aggravate the symptoms of cerebral oppression. . . . In no circumstances is an opiate so likely to produce dangerous and unmanageable stupor, as when its influence is added to that of urea in the blood."

Dr. Geo. T. Elliott, in a paper on albuminuria in pregnancy, states that in uræmic eclampsia he has always used narcotics very sparingly,—codea and McMunn's Elixir of Opium being his choice. He had resorted to a hypodermic injection of morphine.

Dr. Alonso Clark in the most positive terms warns against the use of opium in uræmia.

Dr. Austin Flint, in his Practice of Medicine, states that opium should be given with circumspection, and adds that observation has shown that in moderate doses it is liable to produce marked and even fatal narcotism if the blood is surcharged with urea. In the same connection he alludes to the case of an opium-eater with Bright's disease who took a bottle of McMunn's Elixir daily, without any apparent ill effect.

It is hardly necessary to multiply quotations to show that the profession has almost unanimously lifted its voice in warning against the use of opium either in acute or chronic uræmia.

During the first years of my professional life, I regarded opium as one of the most dangerous remedial agents that could be administered to uræmic patients, rarely daring to give more than five grains of Dover's powder to a patient with albuminous urine, and if convulsions and fatal coma happened to follow such administration, more than once do I remember to have felt that a Dover's powder which I had administered might have been the cause of the fatal coma.

[Dr. Loomis then relates the clinical history of ten cases of uræmia.]

These histories and their accompanying statements go far, it seems to me, to place hypodermics of morphine among our most reliable agents in controlling this terrible form of acute uræmia; and it would appear, that if a large hypodermic of morphine be administered at the outset of uræmic eclampsia, and repeated whenever the premonitions of a convulsion are present, we offer these distressing cases the best chance of recovery.

In the histories of the ten cases given I think we find answers to the two questions asked at the commencement of this discussion:

First.—That morphine can be administered hypodermically to some if not to all patients with acute uræmia, without endangering life.

Second.—That the almost uniform effect of morphine so administered is—1st, to arrest muscular spasms by counteracting the effect of the uræmic poison on the nerve-centres; 2nd, to establish profuse diaphoresis; 3rd, to facilitate the action of cathartics and diuretics, especially the diuretic action of digitalis.

Thus morphine, administered hypodermically, becomes a powerful eliminating agent.

The rules which are to govern its administration are as yet not well defined. My own experience would teach me to give small doses at first,—not to exceed ten minims. If convulsions threaten, and a small dose does not arrest the muscular spasms, it may be increased to twenty minims, and the hypodermics may be repeated as often as every two hours. It must be given in sufficient quantities to control convulsions; neither the contraction of the pupils nor the number of the respirations is a reliable guide in its administration.

SURGERY.

PROF. WOOD ON THE RADICAL CURE OF HERNIA.

I have long thought that we might, in favourable cases, safely do more than we now attempt, to prevent a return of the protrusion after the operation for the relief of strangulation. After performing operations for the radical cure more than two hundred times, I had grounds for the belief (which other operations on the peritoneum also favoured) that, in a healthy subject, the peritoneum might be dealt with as freely and as safely as any other tissue; and also, that the chances of bad results from peritonitis would depend upon the injury sustained by the bowel in strangulation, rather than upon any way of dealing with the peritoneal sac and parietes after the strangulation had been relieved, provided that due drainage be secured. In cases where the bowel and omentum are congested only, and most likely to recover when placed into their natural cavity, in young and healthy lads, with strangulated inguinal hernia, I concluded that the attempt would be justified, and would probably be successful. If so, the advantage of preventing a lifelong trouble and danger from rupture by the operation which relieves strangulation is obvious. The kind of cases I selected for such an attempt, and the nature and results of the proceeding, will be best conveyed to your minds by a short *resumé* of the three cases where I have had the opportunity of carrying it into practice.

On June 29th, 1868, was admitted into King's College Hospital a young man, Alfred F., aged twenty-one, of Warden-road, St. Pancras, with a strangulated right oblique scrotal hernia. The tumour had occurred suddenly from lifting. It was of the size of the fist, and had been strangulated twenty-four hours. He had constipation, violent retching and vomiting, not fecal, quick pulse and anxious face, pain in the epigastrium, and much pain and tenderness in the tumour, upon which several ineffectual attempts at taxis