

She was given 3,000 units of antitoxin when the uremia developed, in hopes of neutralizing the toxin that might be irritating the kidneys, but no amelioration resulted. The necropsy showed the kidneys to be contracted and markedly cirrhotic and white on section. The left weighed 5 dr. 12 gr., and the right 5 dr. 36 gr.

It is thus scarcely fair to call this a case of death from diphtheria, although that disease undoubtedly precipitated the final result. If antitoxin had been early and freely used possibly that result might have been averted, as the cirrhotic kidneys might have been saved the toxic irritation—but one can only surmise on this point."

To my mind when antitoxin fails to reduce the mortality in diphtheria, the failure must be due to one of three causes:

1st. Bad antitoxin.

2nd. Insufficient dosage.

3rd. Late administration of the remedy.

1. Mr. Shuttleworth does not give the source of the antitoxin which has so persistently failed to maintain its record at the Riverdale Hospital, but no doubt the manufacturers will be ready enough to produce evidence from other sources in defence of its purity and strength,

2. Mr. Shuttleworth gives the average dosage employed at the hospital, and, on the whole, this appears to have been fair, though by no means generous.

3. Mr. Shuttleworth does not state at what stage of the disease the antitoxin was administered, although he concludes from what seems like very insufficient evidence, that the time of administration "has not been a factor of much importance."

Here, in my opinion, lies the explanation of the sad failure of antitoxin to reduce the diphtheria mortality at the Riverdale Hospital.

In order to be effectual antitoxin must be administered *early*, as is well shown by Dr. Otto Jelinek's figures (*Das Oesterreich-sches Sanitäts Wesen.*, No. 52, 1900). He collected the reports of all cases of diphtheria reported in all parts of the world to the close of 1898, in all 127,359. His table is as follows:

Those treated with antitoxin on 1st day had a mortality of 5.07 per cent.						
"	"	"	2nd	"	"	8.49 "
"	"	"	3rd	"	"	15.56 "
"	"	"	4th	"	"	23.36 "
"	"	"	5th	"	"	30.02 "

Recent reports of the collective investigations of the American Pediatric Society, the Austrian Sanitary Department and the Imperial German Health Office fully confirm these results up to the present time.

From this it will be seen that in order to be effectual the