BAXTER, BREED AND MULHOLLAND

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DISCUSSION.—Dr. B. W. Haynes, Jr., Houston, Texas: I rise to mention briefly a few studies that we have made on patients who presented a similar type of problem to that discussed so ably by Dr. Breed.

We have had a chance to observe five patients who had various degrees of severe oliguria, associated with surgical complications. I will discuss two of these, briefly. Both of these cases involved transfusion reactions to which shock was an attendant complication. Both of these patients showed severe reductions in the glomerular filtration rate.

[Slide] You will note that at eight days following the original insult, the blood urea nitrogen was 93 mg. per 100 cc. and the creatinin was 2 mg. per 100 cc. Fifteen days following the injury there was a marked reduction in the glomerular filtration rate; 42 days after the original insult there was still a moderate reduction in the glomerular filtration rate. The patient by this time had no clinical evidence of disease.

[Slide] This, a similar case, had a blood urea nitrogen of 140 mg. per 100 cc. six days after the original insult. Two weeks after the injury, the glomerular filtration rate was markedly reduced, as was the renal plasma flow, and the tubular transport mechanisms, as measured by para-amino hippurate were also markedly impaired.

You will note that three months later there is still a definite reduction in glomerular filtration rate, whereas the renal plasma flow is now at approximately a normal level.

I believe these studies lend support to Dr.

Breed's work, and show that such patients may have evidence of renal function impairment for a prolonged period of time, and may demonstrate these changes for a considerable period of time beyond the clinical illness.

One would infer from such studies that any added kidney stress should be avoided for three to six months after such injury. Elective operative procedures for example should not be performed during this period.

Dr. John H. Mulholland, New York, N. Y. (closing): I would like to remark that this project is part of an extension of investigations of shock which were carried on in Bellevue Hospital during the war and in which Dr. Breed participated. Those studies provided good data on blood volume and cardiac output changes in injury but only meager data on renal function alterations and practically none on the persistence of changes after recovery.

It soon became apparent that acute renal failure, or as it is misnamed, lower nephron syndrome, was the serious renal lesion which resulted from protracted hypotension, especially if incompatible blood was administered during the hypotensive period. Dr. Breed and Dr. Baxter, who carried out these studies with the support of the Army Medical Department, did a prodigious amount of work, of which this is one phase. They overcame the inherent difficulties in obtaining data early in the course of injury by constant vigilance and being prepared to study patients at all hours. Of great significance is the possibility of prolonged or even permanent impairment of renal function after urine flow has been re-established.