What is claimed is:

1. A system for achieving a target pressure drop at a location in a renal vein or an inferior vena cava of a patient, the system comprising a first blood pump and a second blood pump, wherein the system is configured to perform the following steps:

increasing an aortic pressure in the patient, using the first blood pump in a heart of the patient;

operating the second blood pump in the inferior vena cava of the patient and the first blood pump in the heart of the patient such that while the second blood pump is operating, the first blood pump is also operating; and

adjusting operation of at least one of the first blood pump and the second blood pump to achieve the target pressure drop.

2. The system of claim 1, wherein operating the second blood pump includes pumping the second blood pump while the first blood pump is pumping.

3. The system of claim 2, wherein operating the first blood pump maintains or increases arterial pressure in a renal artery of the patient.

4. The system of claim 3, wherein operating the second blood pump maintains or decreases renal vein pressure.

5. The system of claim 1, comprising operating the first blood pump to increase arterial pressure, and operating the second blood pump to decrease renal vein pressure.

6. The system of claim 2, wherein the location is a vascular junction where the renal vein and the inferior vena cava of the patient connect.

7. The system of claim 2, wherein the target pressure drop increases blood flow through a kidney of the patient and increases kidney output.

8. The system of claim 7, wherein the target pressure drop is between about 4mmHg and about 8mmHg.

9. The system of claim 7, wherein the target pressure drop is between about 5mmHg and about 7mmHg.

10. The system of claim 2, wherein the target pressure drop corresponds to a blood pressure drop across a kidney of the patient.

11. The system of claim 2, wherein combined operation of the first blood pump and the second blood pump flows humoral factors to kidney receptors of the patient to stimulate an increase in urine exiting a kidney of the patient.

12. The system of claim 1, wherein the first blood pump comprises:
a pump motor;
a pump housing distal of the pump motor, the pump housing surrounding a rotor;
and a cannula extending distal of the pump housing; and
an atraumatic extension extending distally from the cannula.

13. The system of claim 1, wherein the second blood pump comprises:
a pump motor;
a pump housing distal of the pump motor, the pump housing surrounding a rotor; and
a cannula extending distal of the pump housing.

14. The system of claim 13, wherein the second blood pump further comprises an atraumatic extension extending distally from the cannula.

15. The system of claim 14, wherein the second blood pump is positioned inside the inferior vena cava of the patient such that a distal tip of the atraumatic extension of the second blood pump extends to a location adjacent to an outlet of the renal vein of the patient.

16. The system of claim 1, wherein the first blood pump is positioned inside a ventricle of the heart of the patient.

17. The system of claim 1, wherein kidney function is modulated during or after surgery.

18. The system of claim 1, further configured to perform the following steps:
receiving, by a controller, an arterial pressure from the first blood pump, and a venous pressure from the second blood pump,
determining, by the controller, a pressure drop in the renal vein is not at the target pressure drop in the renal vein; and
adjusting, by the controller, operation of at least one of the first blood pump and the second blood pump to achieve the target pressure drop in the renal vein.