

“PEELABLE SEAL AND CONTAINER HAVING SAME”, the disclosures of which are herein incorporated by reference.

It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the spirit and scope of the present invention and without diminishing its intended advantages. It is therefore intended that such changes and modifications be covered by the appended claims.

The invention is claimed as follows:

1. A method of providing dialysis to a patient, the method comprising:

providing a dialysis solution including an osmotic agent and a pharmaceutically active agent comprising a nitronyl nitroxide monoradical selected from the group consisting of 1,3-dihydroxy-2-(2,4-dihydroxyphenyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(3,4-dihydroxyphenyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(4-pyridyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(2-thienyl)-4,4,5,5-tetramethylimidazolidine; 1,3-Dihydroxy-2-(2-furyl)-4,4,5,5-tetramethylimidazolidine; and combinations thereof;

providing the dialysis solution to the patient; and removing an excess amount of nitric oxide from the patient effectively without inhibiting synthesis of nitric oxide.

2. The method of claim 1 wherein the composition is administered intravenously to the patient.

3. A method of preventing or treating intradialytic hypotension in a patient undergoing dialysis, the method comprising the steps of:

providing a composition to the patient wherein the composition includes a pharmaceutically active agent that includes a nitric oxide scavenger composition; and removing an excess amount of nitric oxide from the patient effectively without inhibiting synthesis of nitric oxide.

4. The method of claim 3 wherein the nitric oxide scavenger composition is selected from the group consisting of a nitronyl nitroxide monoradical, a B12 derivative, a flavonoid derivative and combinations thereof.

5. The method of claim 4 wherein the nitric oxide scavenger composition is selected from the group consisting of:

1,3-dihydroxy-2-(2,4-dihydroxyphenyl)-4,4,5,5-tetramethylimidazolidine;

1,3-dihydroxy-2-(3,4-dihydroxyphenyl)-4,4,5,5-tetramethylimidazolidine;

1,3-dihydroxy-2-(4-pyridyl)-4,4,5,5-tetramethylimidazolidine;

1,3-dihydroxy-2-(2-thienyl)-4,4,5,5-tetramethylimidazolidine; 1,3-Dihydroxy-2-(2-furyl)-4,4,5,5-tetramethylimidazolidine;

hydroxocobalamin; cyanocobalamin; pelargonidin; cyanidin; delphinidin and combinations thereof.

6. The method of claim 3 wherein the composition is administered intravenously to the patient.

7. The method of claim 3 wherein the composition is orally administered to the patient.

8. The method of claim 3 wherein the composition is attached to a semipermeable membrane material within a dialyzer allowing removal of the excess nitric oxide during dialysis.

9. The method of claim 8 wherein the composition is attached to a bead material within a cartridge further allowing removal of the excess nitric oxide during dialysis.

10. A method of providing dialysis to a patient, the method comprising:

providing a dialysis solution including an osmotic agent and a pharmaceutically active agent comprising a B12 derivative selected from the group consisting of hydroxocobalamin, cyanocobalamin and combinations thereof;

providing the dialysis solution to the patient; and removing an excess amount of nitric oxide from the patient effectively without inhibiting synthesis of nitric oxide.

11. A method of providing dialysis to a patient, the method comprising:

providing a composition including a pharmaceutically active agent comprising a flavonoid derivative selected from the group consisting of pelargonidin, cyanidin, delphinidin and combinations thereof;

providing the composition to the patient; and removing an excess amount of nitric oxide from the patient effectively without inhibiting synthesis of nitric oxide.

12. A method of providing dialysis to a patient, the method comprising:

attaching a pharmaceutically active agent to a semipermeable membrane within a dialyzer, the pharmaceutically active agent comprising at least one of i) a nitronyl nitroxide monoradical selected from the group consisting of 1,3-dihydroxy-2-(2,4-dihydroxyphenyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(3,4-dihydroxyphenyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(4-pyridyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(2-thienyl)-4,4,5,5-tetramethylimidazolidine; 1,3-Dihydroxy-2-(2-furyl)-4,4,5,5-tetramethylimidazolidine; and combinations thereof, and ii) a B12 derivative selected from the group consisting of hydroxocobalamin, cyanocobalamin and combinations thereof;

passing a dialysis fluid through the dialyzer to remove excess nitric oxide from the dialysis fluid; and providing the dialysis fluid to the patient during dialysis treatment.

13. A method of providing dialysis to a patient, the method comprising:

attaching a pharmaceutically active agent to a bead material within a cartridge, the pharmaceutically active agent comprising at least one of i) a nitronyl nitroxide monoradical selected from the group consisting of 1,3-dihydroxy-2-(2,4-dihydroxyphenyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(3,4-dihydroxyphenyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(4-pyridyl)-4,4,5,5-tetramethylimidazolidine; 1,3-dihydroxy-2-(2-thienyl)-4,4,5,5-tetramethylimidazolidine; 1,3-Dihydroxy-2-(2-furyl)-4,4,5,5-tetramethylimidazolidine; and combinations thereof, and ii) a B12 derivative selected from the group consisting of hydroxocobalamin, cyanocobalamin and combinations thereof;

passing a dialysis fluid through the cartridge to remove excess nitric oxide from the dialysis fluid; and

providing the dialysis fluid to the patient during dialysis treatment.