Claims

1. Use of pyridostigmine or a pharmaceutically acceptable salt thereof in manufacture of medicament for treating at least one symptom of neurogenic orthostatic hypotension, wherein the medicament is to be orally administered in an extended release composition comprising an immediate release component and an extended release component, wherein the immediate release component comprises an immediate release drug layer comprising from about 10 mg to about 100 mg of pyridostigmine or a pharmaceutically acceptable salt thereof,;
wherein the extended release component comprises a core and a permeable elastic membrane comprising an orifice and surrounding the core;
wherein the core comprises from about 50 mg to about 200 mg of pyridostigmine or a pharmaceutically acceptable salt thereof;
wherein the permeable elastic membrane comprises a copolymer based on ethyl acrylate, methyl methacrylate, and trimethylammonioethyl methacrylate chloride, and
wherein the copolymer is present in an amount of from about 70 wt% to about 95 wt%, based on total membrane weight.

2. The use of claim 1, wherein the at least one symptom is retinal hypoperfusion, muscle hypoperfusion, myocardial hypoperfusion, nonspecific symptoms, or combinations thereof.

3. The use of claim 2, wherein the retinal hypoperfusion is impaired vision.

4. The use of claim 2, wherein the muscle hypoperfusion is neck pain, shoulder pain, or combinations thereof.

5. The use of claim 2, wherein the lung hypoperfusion is orthostatic dyspnea.

6. The use of claim 2, wherein the cerebral hypoperfusion is dizziness, light headedness, pre-syncope, difficulty concentrating, headache, cognition, or combinations thereof.

7. The use of claim 2, wherein the myocardial hypoperfusion is angina.

8. The use of claim 2, wherein the nonspecific symptoms are generalized weakness, falls, leg buckling, lethargy, fatigue, nausea, or combinations thereof.

9. Use of pyridostigmine or a pharmaceutically acceptable salt thereof in manufacture of medicament for treating neurogenic orthostatic hypotension, wherein the medicament is to be orally administered in an extended release composition comprising an immediate release component and an extended release component, wherein the immediate release component comprises an immediate release drug layer comprising from about 10 mg to about 100 mg of pyridostigmine or a pharmaceutically acceptable salt thereof,;
wherein the extended release component comprises a core and a permeable elastic membrane comprising an orifice and surrounding the core;
wherein the core comprises from about 50 mg to about 200 mg of pyridostigmine or a pharmaceutically acceptable salt thereof;
wherein the permeable elastic membrane comprises a copolymer based on ethyl acrylate, methyl methacrylate, and trimethylammonioethyl methacrylate chloride, and
wherein the copolymer is present in an amount of from about 70 wt% to about 95 wt%, based on total membrane weight.

10. Use of pyridostigmine or a pharmaceutically acceptable salt thereof in manufacture of medicament for treating neurogenic orthostatic hypotension in a patient that did not respond to other treatments, wherein the medicament is to be orally administered in an extended release composition comprising an immediate release component and an extended release component, wherein the immediate release component comprises an immediate release drug layer comprising from about 10 mg to about 100 mg of pyridostigmine or a pharmaceutically acceptable salt thereof,;
wherein the extended release component comprises a core and a permeable elastic membrane comprising an orifice and surrounding the core;
wherein the core comprises from about 50 mg to about 200 mg of pyridostigmine or a pharmaceutically acceptable salt thereof;
wherein the permeable elastic membrane comprises a copolymer based on ethyl acrylate, methyl methacrylate, and trimethylammonioethyl methacrylate chloride, and

wherein the copolymer is present in an amount of from about 70 wt% to about 95 wt%, based on total membrane weight.

11. Use of pyridostigmine or a pharmaceutically acceptable salt thereof in manufacture of medicament for treating at least one symptom of neurogenic orthostatic hypotension caused by primary autonomic failure beta-hydroxylase deficiency, diabetic autonomic neuropathy, and/or non-diabetic autonomic neuropathy, wherein the medicament is to be orally administered in an extended release composition comprising an immediate release component and an extended release component, wherein the immediate release component comprises an immediate release drug layer comprising from about 10 mg to about 100 mg of pyridostigmine or a pharmaceutically acceptable salt thereof,;
wherein the extended release component comprises a core and a permeable elastic membrane comprising an orifice and surrounding the core;
wherein the core comprises from about 50 mg to about 200 mg of pyridostigmine or a pharmaceutically acceptable salt thereof;
wherein the permeable elastic membrane comprises a copolymer based on ethyl acrylate, methyl methacrylate, and trimethylammonioethyl methacrylate chloride, and
wherein the copolymer is present in an amount of from about 70 wt% to about 95 wt%, based on total membrane weight.

12. The use of claim 11, wherein the primary autonomic failure comprises primary autonomic failure associated with Parkinson’s disease, autonomic failure associated with multiple system atrophy, or pure autonomic failure.

13. The use of claim 11, wherein the at least one symptom comprises orthostatic dizziness, lightheadedness, feeling of black out, cognitive slowing, sleepiness, presyncope, syncope, increased risk of falls, or exercise intolerance.

14. Use of pyridostigmine or a pharmaceutically acceptable salt thereof in manufacture of medicament for treating neurogenic orthostatic hypotension without worsening supine hypertension, wherein the medicament is to be orally administered in an extended release

composition comprising an immediate release component and an extended release component, wherein the immediate release component comprises an immediate release drug layer comprising from about 10 mg to about 100 mg of pyridostigmine or a pharmaceutically acceptable salt thereof,;
wherein the extended release component comprises a core and a permeable elastic membrane comprising an orifice and surrounding the core;
wherein the core comprises from about 50 mg to about 200 mg of pyridostigmine or a pharmaceutically acceptable salt thereof;
wherein the permeable elastic membrane comprises a copolymer based on ethyl acrylate, methyl methacrylate, and trimethylammonioethyl methacrylate chloride, and
wherein the copolymer is present in an amount of from about 70 wt% to about 95 wt%, based on total membrane weight.

15. The use of claim 14, wherein the treatment comprises increasing diastolic blood pressure by at least 5 mm Hg post standing and increasing systolic blood pressure by at least 10 mm Hg post standing.

16. The use of claim 14, wherein the core further comprises an acid; a gas generating agent; a filler; a wicking agent; a swellable, water-soluble, hydrophilic polymer; and or combinations thereof.

17. The use of claim 16, wherein the acid is selected from the group consisting of succinic acid, citric acid, acetic acid, malic acid, fumaric acid, stearic acid, tartaric acid, boric acid, benzoic acid, and combinations thereof.

18. The use of claim 16, wherein the swellable, water-soluble hydrophilic polymer is hydroxypropyl methylcellulose.

19. The use of claim 16, wherein the gas generating agent is selected from the group consisting of sodium bicarbonate, magnesium carbonate, and calcium carbonate, and mixture thereof.

20. The use of claim 16, wherein the wicking agent is crospovidone.