ALLERGY TESTING DEVICE AND METHOD OF TESTING FOR ALLERGIES

CROSS REFERENCE TO RELATED APPLICATION

[01] This application claims priority to U.S. Patent Application No. 13/308111 filed November 30, 2011, which prior application is incorporated herein in its entirety and made part hereof.

FIELD

[02] This disclosure generally relates to reducing pain in a skin testing device system commonly used fomr applying test solution, such as liquid antigens, employed in skin testing for allergies, to patients' skin via skin test devices that have sharp pointed ends.

BACKGROUND

[03] Skin testing to identify potential allergens that a patient may be allergic to is well known in many forms. The person conducting the skin testing may apply a relatively large number of test solutions to a patient's skin. To perform skin tests of this type, the person conducting the skin test typically places the skin test devices into a test solution such that a small amount of test solution adheres to the sharp pointed ends on the legs of the skin testing device via capillary attraction. The loaded skin test device is then pressed into a site on the patient's skin in a predetermined sequence. However, the sharp pointed ends of the skin test device may cause discomfort to some patients and much pain to other patients because the sharp pointed ends must penetrate the epidermis of the skin in order to get meaningful allergy test results. The discomfort and/or pain caused by the testing can be traumatic for the patient and disruptive to the nurse or doctor administering the testing.

BRIEF SUMMARY

[04] In an exemplary embodiment, an allergy testing system is disclosed. The allergy testing system comprises ~~a skin test device and a plurality of wells, each having a reservoir for receiving test solutions such as potential allergens or controls. The skin test device can have an elongated grip portion for holding the device. A plurality of legs extends from the grip, and the plurality of legs is spaced and oriented to contact a~~

~~corresponding well containing the test solution. Each of the plurality of legs has a test head, and each test head has a plurality of elongated spike members. The elongated spike members have sharp ends configured to receive the test solution or potential allergen from a well, for example via capillary attraction, and to puncture a patient's skin to deliver the test solution or allergen. In addition, each test head has at least one touch activator. The touch activator is longer than the plurality of elongated spike members, such that during an allergy test, the touch activator comes into contact with the skin prior to the elongated spike members, causing the touch activator to activate nerve tissue that blocks pain transmission resulting in a reduction of discomfort and/or pain during testing. Each well reservoir is sized and oriented to receive a separate test head of the allergy testing applicator.~~a skin test device comprising:

an elongated grip portion for holding the device;

a plurality of legs extending from the grip, the plurality of legs spaced and oriented to interact with a plurality of wells containing test solutions; wherein each of the plurality of legs has a test head, each test head comprising a plurality of elongated spikes each having a sharp end configured to receive the test solution from a well and to puncture skin to deliver the test solution, each test head further comprising at least one touch activator, wherein the touch activator is longer than the plurality of elongated spikes, such that during an allergy test, the touch activator is configured to come into contact with the skin prior to the elongated spikes, to cause the touch activators to activate nerve tissue that suppresses transmission of pain, resulting in a reduction of pain during testing; and

a plurality of wells each well having a reservoir for receiving test solutions and wherein each reservoir is sized and oriented to receive a separate test head of the skin test device.

[04a] In another exemplary embodiment, there is provided a skin test device comprising:

a grip portion for holding the skin test device;

at least one leg extending from the grip portion, each leg oriented to interact with a well containing a test solution; and

wherein each leg has a test head, each test head comprising a plurality of elongated spikes and at least one touch activator, wherein the plurality of elongated spikes each have a sharp end configured to receive the test solution

from a well and to puncture skin for delivering the test solution, wherein the touch activator is longer than the plurality of elongated spikes, such that during an allergy test, the touch activator is configured to come into contact with the skin prior to the elongated spikes, to cause the touch activator to activate nerve tissue that suppresses pain, resulting in a reduction of pain during testing.

[04b] In yet another exemplary embodiment, there is provided a skin test device comprising:

a grip portion for holding the skin test device;

at least one leg extending from the grip portion, the leg being oriented to interact with a well containing a test solution; and

wherein the leg has a test head, the test head comprising at least one elongated spike having a sharp end configured to receive the test solution from a well and to puncture skin for delivering the test solution, the test head further comprising at least one touch activator, wherein the touch activator is longer than the elongated spike, such that during an allergy test, the touch activator is configured to come into contact with the skin prior to the elongated spike, to cause the touch activator to activate nerve tissue that suppresses pain, resulting in a reduction of pain during testing.

[05] It will be appreciated by those skilled in the art, given the benefit of the following description of certain exemplary embodiments disclosed herein, that at least some of these embodiments have improved or alternative configurations suitable to provide enhanced benefits. These and other aspects, features and advantages of this disclosure or of certain embodiments of the disclosure will be further understood by those skilled in the art from the following description of exemplary embodiments taken in conjunction with the following drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[06] To understand the present disclosure, it will now be described by way of example, with reference to the accompanying drawings in which:

[07] FIG. 1 shows a perspective view of a skin testing device in accordance with an exemplary embodiment;

[08] FIG. 2 shows a magnified perspective view of a test head in accordance with an exemplary embodiment.

[09] FIG. 3 shows a bottom view of the exemplary embodiment shown in FIG. 2.

[10] FIG. 4 shows a front view of the exemplary embodiment shown in FIG. 2, wherein the rear view is a mirror image of FIG. 4.

[11] FIG. 5 shows a right side view of the exemplary embodiment shown in FIG. 2, wherein the left side view is a mirror image of FIG. 5.

What is claimed is:

1. An allergy testing system comprising:

a skin test device comprising:

an elongated grip portion for holding the device;

a plurality of legs extending from the grip, the plurality of legs spaced and oriented to interact with a plurality of wells containing test solutions; wherein each of the plurality of legs has a test head, each test head having a plurality of elongated spikes each having a sharp end configured to receive the test solution from a well and to puncture skin to deliver the test solution, each test head having at least one touch activator, wherein the touch activator is longer than the plurality of elongated spikes, such that during an allergy test, the touch activator comes into contact with the skin prior to the elongated spikes, causing the touch activators to activate nerve tissue that suppresses transmission of pain, resulting in a reduction of pain during testing; and

a plurality of wells each well having a reservoir for receiving test solutions and wherein each reservoir is sized and oriented to receive a separate test head of the skin test device.

2. The allergy testing system of claim 1, wherein at least one of the touch activators on the plurality of test heads has a convex end portion.

3. The allergy testing system of claim 1, wherein the touch activator on each of the plurality of test heads is a cylindrical shaped post.

4. The allergy testing system of claim 1, wherein the elongated spikes are generally pyramid shaped and wherein the base of the elongated spikes is generally square shaped.

5. The allergy testing system of claim 1, wherein the elongated spikes surround the touch activator.

6. The allergy testing system of claim 1, wherein the touch activator has a convex outer portion and a concave inner portion.

7. The allergy testing system of claim 1, wherein the plurality of test heads each comprise two touch activators, each touch activator being arranged radially outward from a

center of the test head and the elongated spikes being located radially inward on a portion of the test head between each touch activator.

8. The allergy testing system of claim 1, wherein the plurality of test heads each comprise one touch activator, the touch activator being arranged radially outward on the test head from a test head center and the elongated spikes being located radially outward from the test head center in the generally opposite direction from the touch activator.

9. The allergy testing system of claim 1, wherein a touch activator has a convex surface that generally follows the circumference of the test heads.

10. The allergy testing system of claim 1, wherein each touch activator is in the range of 0.005 in. to 0.010 in. longer than the longest of the elongated spikes.

11. The allergy testing system of claim 1, wherein each touch activator is approximately 0.010 in. longer than the longest of the elongated spikes.

12. A skin test device comprising:

a grip portion for holding the skin test device;

at least one leg extending from the grip portion, each leg oriented to interact with a well containing a test solution; and

wherein each leg has a test head, each test head having a plurality of elongated spikes having a sharp end configured to receive the test solution from a well and to puncture skin for delivering the test solution, each test head having at least one touch activator, wherein the touch activator is longer than the plurality of elongated spikes, such that during an allergy test, the touch activator comes into contact with the skin prior to the elongated spikes, causing the touch activator to activate nerve tissue that suppresses pain, resulting in a reduction of pain during testing.

13. The skin test device of claim 12 wherein the touch activator on each test head has a convex end portion.

14. The skin test device of claim 12 wherein the touch activator on each test head is a cylindrical shaped post.

15. The skin test device of claim 12 wherein the elongated spikes are pyramid shaped, and wherein the base of the elongated spikes is square shaped.

16. The skin test device of claim 12 wherein the elongated spikes surround the touch activator.

17. The skin test device of claim 12 wherein the at least one touch activator has a convex outer portion and a concave inner portion.

18. The skin test device of claim 12 wherein each test head comprises two touch activators, each touch activator being arranged radially outward from a center of the test head and the elongated spikes being located radially inward on a portion of the test head between each touch activator.

19. The skin test device of claim 12 wherein each test head comprises one touch activator, the touch activator being arranged radially outward on the test head from a test head center, and the elongated spikes being located radially outward from the test head center in the opposite direction from the touch activator.

20. The skin test device of claim 12 wherein the touch activator has a convex surface that generally follows the circumference of the test head.

21. The skin test device of claim 12 wherein each touch activator is in the range of 0.005 in. to 0.010 in. longer than the longest of the elongated spikes.

22. The skin test device of claim 12 wherein each touch activator is approximately 0.010 in. longer than the longest of the elongated spikes.

23. A skin test device comprising:

a grip portion for holding the skin test device;

at least one leg extending from the grip portion, the leg being oriented to interact with a well containing a test solution; and

wherein the leg has a test head, the test head having at least one elongated spike having a sharp end configured to receive the test solution from a well and to puncture skin for delivering the test solution, the test head having at least one touch activator, wherein the touch activator is longer than the elongated spike, such that during an allergy test, the touch activator comes into

contact with the skin prior to the elongated spike, causing the touch activator to activate nerve tissue that suppresses pain, resulting in a reduction of pain during testing.

24. The skin test device of claim 23, wherein the touch activator on the test head has a convex end portion.

25. The skin test device of claim 23, wherein the touch activator on the test head is a cylindrical shaped post.

26. The skin test device of claim 23, wherein the elongated spike is pyramid shaped, and wherein the base of the elongated spike is square shaped.

27. The skin test device of claim 23, wherein the test head comprises a plurality of elongated spikes and wherein the elongated spikes surround the touch activator.

28. A method for administering an allergy test with an allergy test device having a test head with a plurality of elongated spikes and at least one touch activator longer than the plurality of elongated spikes comprising:

placing the allergy testing device into at least one well containing a test solution to load the test solution onto the test head;

administering the test solution to skin of a patient by pressing the allergy testing device against the skin such that the touch activator of the test head comes into contact with the skin prior to the elongated spikes of the test head puncturing the skin of the patient and delivering the test solution, wherein the touch activator activates nerve tissue that suppresses pain, resulting in a reduction of pain during testing.

29. The method of claim 28 further comprising using an allergy testing device with a plurality of legs and test heads, wherein each of the test heads comprise a plurality of elongated spikes and at least one touch activator and placing each of the plurality of test heads into a respective well containing a test solution.

30. The method of claim 29 further comprising pressing the plurality of test heads against the skin of a patient such that each of the test head touch activators come into contact with the skin before the elongated spikes of each test head resulting in a reduction of pain at each contact site of each test head.

What is claimed is:

1. An allergy testing system comprising:

a skin test device comprising:

an elongated grip portion for holding the device;

a plurality of legs extending from the grip, the plurality of legs spaced and oriented to interact with a plurality of wells containing test solutions; wherein each of the plurality of legs has a test head, each test head comprising a plurality of elongated spikes each having a sharp end configured to receive the test solution from a well and to puncture skin to deliver the test solution, each test head further comprising at least one touch activator, wherein the touch activator is longer than the plurality of elongated spikes, such that during an allergy test, the touch activator is configured to come into contact with the skin prior to the elongated spikes, to cause the touch activators to activate nerve tissue that suppresses transmission of pain, resulting in a reduction of pain during testing; and

a plurality of wells each well having a reservoir for receiving test solutions and wherein each reservoir is sized and oriented to receive a separate test head of the skin test device.

2. The allergy testing system of claim 1, wherein at least one of the touch activators on the plurality of test heads has a convex end portion.

3. The allergy testing system of claim 1, wherein the touch activator on each of the plurality of test heads is a cylindrical shaped post.

4. The allergy testing system of claim 1, wherein the elongated spikes are pyramid shaped.

5. The allergy testing system of claim 4 wherein bases of the elongated spikes are square shaped.

6. The allergy testing system of claim 1, wherein the elongated spikes surround the touch activator.

7. The allergy testing system of claim 1, wherein the touch activator has a convex outer portion and a concave inner portion.

8. The allergy testing system of claim 1, wherein the plurality of test heads each comprise two touch activators, each touch activator being arranged radially outward from a center of the test head and the elongated spikes being located radially inward on a portion of the test head between each touch activator.

9. The allergy testing system of claim 1, wherein the plurality of test heads each comprise one touch activator, the touch activator being arranged radially outward on the test head from a test head center and the elongated spikes being located radially outward from the test head center in the opposite direction from the touch activator.

10. The allergy testing system of claim 1, wherein a touch activator has a convex surface that follows the circumference of the test heads.

11. The allergy testing system of claim 1, wherein each touch activator is in the range of 0.005 in. to 0.010 in. longer than the longest of the elongated spikes.

12. The allergy testing system of claim 1, wherein each touch activator is 0.010 in. longer than the longest of the elongated spikes.

13. The allergy testing system of claim 1, wherein the elongated spikes are placed circumferentially around the touch activator on each test head.

14. The allergy testing system of claim 1, wherein each reservoir is sized and oriented to receive both the elongated spikes and the touch activator of each of the test heads of the skin test device and wherein each of the test heads are configured to receive test solution from a corresponding well.

15. The allergy testing system of claim 1, wherein the skin test device further comprises a T-shaped extension configured to ensure that each test head of the skin test device are placed into the wells in a proper orientation.

16. A skin test device comprising:

a grip portion for holding the skin test device;

at least one leg extending from the grip portion, each leg oriented to interact with a well containing a test solution; and

wherein each leg has a test head, each test head comprising a plurality of elongated spikes and at least one touch activator, wherein the plurality of elongated spikes each have a sharp end configured to receive the test solution from a well and to puncture skin for delivering the test solution, wherein the touch activator is longer than the plurality of elongated spikes, such that during an allergy test, the touch activator is configured to come into contact with the skin prior to the elongated spikes, to cause the touch activator to activate nerve tissue that suppresses pain, resulting in a reduction of pain during testing.

17. The skin test device of claim 16 wherein the touch activator on each test head has a convex end portion.

18. The skin test device of claim 16 wherein the touch activator on each test head is a cylindrical shaped post.

19. The skin test device of claim 16 wherein the elongated spikes are pyramid shaped.

20. The skin test device of claim 19 wherein bases of the elongated spikes are square shaped.

21. The skin test device of claim 16 wherein the elongated spikes surround the touch activator.

22. The skin test device of claim 16 wherein the at least one touch activator has a convex outer portion and a concave inner portion.

23. The skin test device of claim 16 wherein each test head comprises two touch activators, each touch activator being arranged radially outward from a center of the test head and the elongated spikes being located radially inward on a portion of the test head between each touch activator.

24. The skin test device of claim 16 wherein each test head comprises one touch activator, the touch activator being arranged radially outward on the test head from a test head center, and the elongated spikes being located radially outward from the test head center in the opposite direction from the touch activator.

25. The skin test device of claim 16 wherein the touch activator has a convex surface that follows the circumference of the test head.

26. The skin test device of claim 16 wherein each touch activator is in the range of 0.005 in. to 0.010 in. longer than the longest of the elongated spikes.

27. The skin test device of claim 16 wherein each touch activator is 0.010 in. longer than the longest of the elongated spikes.

28. The skin test device of claim 16, wherein the elongated spikes are placed circumferentially around the touch activator on each test head.

29. The skin test device of claim 16, wherein both the elongated spikes and the touch activator of each of the test heads of the skin test device are together configured to be placed into a reservoir and wherein each of the test heads are configured to receive test solution from a corresponding well.

30. The skin test device of claim 16 further comprising a T-shaped extension configured to ensure that each test head of the skin test device are placed into the wells in a proper orientation.

31. A skin test device comprising:

a grip portion for holding the skin test device;

at least one leg extending from the grip portion, the leg being oriented to interact with a well containing a test solution; and

wherein the leg has a test head, the test head comprising at least one elongated spike having a sharp end configured to receive the test solution from a well and to puncture skin for delivering the test solution, the test head further comprising at least one touch activator, wherein the touch activator is longer than the elongated spike, such that during an allergy test, the touch activator is configured to come into contact with the skin prior to the elongated spike, to cause the touch activator to activate nerve tissue that suppresses pain, resulting in a reduction of pain during testing.

32. The skin test device of claim 31, wherein the touch activator on the test head has a convex end portion.

33. The skin test device of claim 31, wherein the touch activator on the test head is a cylindrical shaped post.

34. The skin test device of claim 31, wherein the elongated spike is pyramid shaped.

35. The skin test device of claim 34 wherein bases of the elongated spikes are square shaped.

36. The skin test device of claim 31, wherein the test head comprises a plurality of elongated spikes and wherein the elongated spikes surround the touch activator.

37. The skin test device of claim 31, wherein the elongated spikes are placed circumferentially around the touch activator on each test head.

38. The skin test device of claim 31, wherein both the elongated spikes and the touch activator of each of the test heads of the skin test device are together configured to be placed into a reservoir and wherein each of the test heads are configured to receive test solution from a corresponding well.

39. The skin test device of claim 31 further comprising a T-shaped extension configured to ensure that each test head of the skin test device are placed into the wells in a proper orientation.