ABSTRACT: A device adapted to be placed upon the skin of a patient to be injected with medicine or other biological and capable of vibrating the skin at the injection area to stimulate the pain center of the skin such that the pain normally associated with injection of medication at said area by a needle or the like is reduced and minimized.
DEVICE FOR REDUCING THE PAIN OF INJECTIONS OF MEDICINES AND OTHER BIOLOGICALS

BACKGROUND OF THE INVENTION

Due to the pain often resulting from the injection of medications into a patient's skin, many persons are reluctant to visit their doctors for obtaining the "shots" necessary for proper immunization and other desirable medical procedures. This is particularly true in the case of children who shrink from the fright and pain of the injections given by their pediatricians.

As a result of this problem, various efforts have been made to minimize the trauma arising from such incidents but short of anesthetizing or hypnosis, no method has been developed to date which eliminates entirely the pain associated with such injections.

It is an object of this invention to provide a novel and highly useful device for reducing the pain of injections of medicines and other biologicals.

It is a further object of this invention to substantially lessen the pain associated with such injections by the use of a novel vibrating device which stimulates the pain center of the patient's skin at the area of injection.

It is a still further object of this invention to provide a vibrating device adapted to be pressed against the skin of the patient at the area of injection so as to stimulate the pain center and thereby reduce the pain of injection, which device advantageously is shaped so as to facilitate proper positioning of the injection instrument at the area of the skin to be injected.

SUMMARY OF THE INVENTION

An improved device for reducing the pain normally associated with the injection of medicines or other biologicals comprising a casing adapted to be pressed against the skin of the patient, said casing being shaped to define an opening therethrough, said opening being sufficiently large to receive one end of an injection instrument and to guide the same to the skin area to be injected, and vibratory means positioned within said casing to cause the skin of the patient to be vibrated sufficiently to stimulate the pain center of the skin, thereby minimizing the pain of the injection.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 illustrates a preferred embodiment of the invention fastened upon the arm of the patient in position for receiving the needle of the injection instrument; FIG. 2 illustrates one illustrative embodiment of the invention in which the skin contacting surface of the vibratable casing is provided with a plurality of projections or studs to facilitate stimulation of the pain center of the skin; and FIG. 3 is an illustrative schematic diagram of one type of vibrating mechanism which may be utilized within the casing.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

Referring now to the drawing and more particularly to FIGS. 1 and 2 thereof, there is illustrated one preferred embodiment of a vibratable casing embodying the present invention.

Those skilled in the art will appreciate that this specific embodiment is merely illustrative of the features and advantages of the invention, and that it is intended to cover hereby all adaptations, modifications and arrangements thereof which come within the novel principles defined by the appended claims.

As shown in FIGS. 1 and 2, the preferred embodiment may take the form of a casing 10 adapted to be pressed against the skin 12 of the patient at the area of injection of medicine or other biologicals. The casing 10 advantageously is shaped to define a central opening 14 therein, said opening being sufficiently large so as to receive the end of a hypodermic needle 16 and to guide the same to the point of injection. This arrangement facilitates the positioning of the needle by the physician. Manifestly, the configuration of opening 14 may be of the U-shaped form shown in the drawing, or alternatively, the casing 10 may be annular in shape so as to define a circular opening 14 therewithin, the shape of the casing not being a critical limitation in the use of the invention. During the use of the casing 10, the latter may be held manually against the skin of the patient, or suitable fastening devices may be utilized to free the hands of the physician. In the preferred embodiment illustrated in the drawing, the casing 10 is provided with a pair of straps 18 and 20, respectively extending from opposite sides of the casing 10. The straps 18 and 20 are of a length sufficient to encircle an arm of the patient, as illustrated in FIG. 1 and are provided with suitable fastening means at their ends to enable the invention to be securely positioned on the arm of the wearer in preparation for the injection.

The fastening means of the ends of straps 18 and 20 may take any form such as a buckle, tie or a pressure locking velcro fastener 22 as illustrated in FIG. 2 of the drawing. The latter is advantageously as it permits the invention to be quickly and easily secured to or removed from the patient's arm.

In order to stimulate the pain center of the skin and thereby reduce the pain of injection, the invention provides for the casing 10 to be vibrated against the skin of the patient at the area of injection. This vibration can be accomplished in a number of well-known ways, both of the mechanical and electrical variety. For example, as shown in FIG. 3, the vibrator may consist of a suitable electrical power source 24 such as a battery and inverter, for providing an alternating current to a coil 26 converted to said power source through a suitable switch 28. The coil may have an armature 30 positioned therewithin such that energization of the coil 26 causes the armature to oscillate for providing the desired vibratory motion to the casing 10.

Those skilled in the art will appreciate that many other devices for vibrating the casing 10 may be employed. One such device could include, for example, a mechanical or electrically powered motor having an eccentric mounted weight attached to the end of the motor shaft. Various other means adapted to be positioned within casing 10 and capable of vibrating the same are known and therefore the details of the particular vibrating means employed do not form a limitation on the scope of the present invention.

In accordance with a still further feature of this invention, the stimulation of the pain center of the skin by the invention can be enhanced by the provision of suitable studs or projections 32 extending outwardly from the skin contacting surface of the casing 10. The use of either a smooth surface casing or a studded casing, as desired, is fully intended to be within the spirit of the present invention.

What is claimed as the invention is:

1. An improved device for reducing the pain normally associated with the injection of medicines or other biologicals comprising:
   a. a casing adapted to be pressed against the skin of the patient,
   b. said casing having a hollow portion therewithin and being shaped to define an opening therethrough,
   c. said opening being sufficiently large so as to receive one end of an injection instrument and to guide the same to the skin area to be injected, and
   d. vibratory means positioned within said casing to cause the skin of the patient to be vibrated sufficiently to stimulate the pain center of the skin, thereby minimizing the pain of the injection.

2. An improved device in accordance with claim 1 further comprising a plurality of projections extending outwardly from the casing portion adapted to be passed against the skin for enhancing the stimulation of the skin pain center during vibration of the casing.

3. An improved device in accordance with claim 1 wherein said casing is U-shaped.

4. An improved device in accordance with claim 1 further comprising strap means extending from opposite sides of said casing to facilitate attachment of the casing to the skin of the patient.
5. An improved device in accordance with claim 4 wherein said strap means are provided with fastening means adjacent their respective ends.

6. An improved device in accordance with claim 1 wherein said vibratory means comprises an electrical power source and an electrically energizable vibrator connected to said power source through switching means.