ANCHOR PAID FOR CATHETERIZATION SYSTEM

Background of the Invention

Field of the Invention

The present invention relates to an anchor pad for an intravenous catheterization connector, and, more particularly, to an anchor pad for use with a tripe-lumen connector.

Description of the Related Art

It is very common in the treatment of patients to utilize intravenous ("IV") catheters to introduce fluids and medications directly into the bloodstream. In many cases, and particularly with respect to cardiac therapy, the IV catheter is introduced into a central line or a larger vein located close to the patient's heart. In such circumstances, long term infusion typically requires that the catheter remain in place for many days. In order to secure such a central line IV catheter in position at the injection site, the IV tubing is commonly mounted on a thin flexible pad or seat which is then sutured to the patient's skin. This combination of tubing and pad comprises a connector to which one or more other IV supply lines having compatible connectors can be attached. In one example, a triple-lumen connector sold under the brand name ARROW® provides three separate supply lines for secondary IV fluids or manual injection sites.

A number of problems, however, have arisen with respect to such central line connectors such as the triple-lumen connector described above. First, suturing the pad to the patient's skin is painful. Also, with the passage of time, the sutures frequently tear through the soft plastic material comprising the seat of the connector, thus permitting movement of the connector in the injection site and adding to the pain and discomfort of the patient. Even if they do not tear, the sutures may loosen to such an extent that 2 to 3 mm of movement occurs in and out of the injection site. This

movement is not only painful to the patient, but also fosters bacteria infections at the site. It is estimated that there are approximately 50,000 catheter infections per year, many of which are due to problems such as those described above.

One means for holding an intravenous catheter to a patient's skin at an injection site is disclosed in WO 80/01458. This reference describes a catheter stabilizing fitting, comprising a catheter hub-retaining cradle on a laminar base member having an adhesive undersurface and a tab grip extending rearwardly of the cradle. The cradle comprises side walls formed to receive a catheter hub, and the side walls preferably further include a snap-over cover hinged to one of the side walls which fits over a catheter hub in the cradle. The retention means of WO 80/01458 is, however, designed for use in a kit with a specific catheter and relies upon the properties of the hub of this catheter. This is also the case for the catheter-fixation devices disclosed in EP-A-0 064 284 and FR-A-2 381 529.

Thus, there is a need for a more secure means for attachment of a central line catheter to the body of the patient at the injection site.

Summary of the Invention

The present invention comprises an anchor pad which securely fastens onto the body of the patient by means of an adhesive applied to one planar side of the pad. The opposite planar side of the pad includes one or more retention members which engage the suture holes commonly found in typical central line connectors, such as the triple-lumen connector described above. In the preferred embodiment, the retention members correspond to the number, size and spacing of the connector suture holes. As an optional feature, the retention members can be barbed uprights.

The triple-lumen connector mounts on the anchor pad of the present invention by aligning the suture holes in the plastic seat of the connector over the retention members on the anchor pad. The connector is then pressed down over the

retention members until the connector is secured. The configuration of the retention members permits movement of the connector toward the body of the patient but prevents movement in the opposite direction, thus preventing accidental disengagement.

When it is necessary or desirable to remove the central line connector, the rentention members can be easily and quickly snipped off above the connector to allow the connector to lift off of the stumps of the retention members away from the patient. Thus, the pain and discomfort associated with such central line catheters is avoided, while at the same time providing a secure connection.

Brief Description of the Drawings

Figure 1 is a perspective view of a typical triple-lumen central line catheter having a seat with a pair of suture holes formed therein.

Figure 2 is a perspective view of the anchor pad of the present invention illustrating a pair of upstanding barbs to receive the suture holes of the connector.

Detailed Description of the Invention

Referring to Figure 1, there is shown a typical triple-lumen central line catheter 10 of the type manufactured under the ARROW® brand name. Although the present invention is illustrated and described herein in connection with a triple-lumen catheter, it should be understood that the principles of the invention apply equally well to other types of catheters with various configurations.

The triple-lumen catheter 10 of Figure 1 comprises a central planar seat 12 formed of a soft pliable plastic, having a pair of suture holes 14 formed therein. Extending away from the seat in one direction is a cannula 16 which inserts into the injection site 17 in the body of the patient, in accordance with standard catheterization procedures. Extending away from the seat in the opposite direction are three lengths of IV tubing 18, each ending in a standard IV connector 20, such as, for example, a lure-type

lock or septum cap. These standard IV connectors 20 can receive compatible connectors (not shown) formed on the end of IV supply tubing, or can receive manual injections for administering medication or other fluids directly into a central vein of the patient.

In order to secure the triple-lumen catheter 10 at the injection site, the seat 12 is typically positioned on the body and sutured to the skin of the patient by means of the suture holes 14. Over time, however, as explained above, the sutures either loosen or tear completely through the seat material. The patient experiences pain and discomfort, and risks infection as a result.

Referring to Figure 2, there is shown the anchor pad 22 of the present invention comprising a planar pad 24 having a self-adhesive material applied to the bottom surface 26 thereof. The adhesive secures the anchor pad 22 to the patient's body without sutures.

A pair of barbed uprights 28 integrally mount on the opposite side 24 of the pad 22. The barbs 28 are spaced and configured to receive the suture holes 14 on the seat 12 of the triple-lumen catheter 10 (shown in Figure 1). In addition, the diameter of the cylindrical portion of the uprights (not including the barbs) is sized to slightly deform the seat of the connector as it press fits onto the pad. Preferably, the seat deforms elastically to be securely retained on the anchor pad.

It will be noted that the barbs 28 elastically permit the seat 12 to pass down over the jagged edges of the barbs, but prevent movement of the seat in the opposite direction. Thus, the anchor pad of the present invention securely mounts the seat of the triple-lumen catheter on the patient's body. Not only is the patient relieved of pain, but the risk of complete or partial disengagement is eliminated.

In order to remove the catheter, the barbs are simply snipped off so that the seat can be easily lifted over the remaining stumps. The pad is then removed from the patient

with minimal discomfort. The barbs are constructed from a material which is less elastic than the material comprising the connector seat but which is easily severable.

Therefore, the anchor pad of the present invention presents a significant advance in the use and attachment of central line catheters. While the preferred arrangement of the present invention has been illustrated and described, it should be understood that various changes and modifications to the system illustrated will readily come to mind which fall within the scope of the invention as set forth in the appended claims.

WE CLAIM:

1. An apparatus for securing a connector of a catheterization system to the body of a patient, wherein said catheterization system is provided with a substantially planar seat (12) having holes (14) formed therein of the type used for suturing, said apparatus comprising an adhesive member (24) for secure attachment to the body of the patient and at least one retention member (28) mounted on said adhesive member (24), said retention member (28) preventing accidental disengagement of said connector, wherein said apparatus is characterized in that:

said retention member (28) is positioned and configured to correspond with at least one of said holes (14) for receiving said seat (12) of said connector in slidable engagement.

2. The apparatus of Claim 1 further characterized in that said retention member (28) is barbed, permitting said slidable movement in one direction only.

3. The apparatus as defined in Claims 1 or 2 further characterized in that said apparatus includes a plurality of retention members (28) positioned on said adhesive member (24) so as to be in alignment with said holes (14).

4. The apparatus as claimed in Claim 1 or any one of Claims 2-3 when dependent therefrom, further characterized in that the diameter of said retention member (28) is slightly larger than that of said hole (14).

5. A method for anchoring a catheterization connector to a surface, wherein said catheterization connector includes a substantially planar seat (12) having holes (14) formed therein of the type used for suturing, said method characterized by the steps of:

providing an anchoring apparatus (22) having an adhesive member (24) and at least one retention member (28), said retention member (28) extending outwardly from said adhesive member (24);

placing said adhesive member (24) on said surface to secure said anchoring apparatus (22) thereon with said retention member (28) extending away from said surface;

inserting said retention member (28) through a hole (14) of the catheterization connector planar seat (12) to prevent unintentional disengagement between the retention member (28) and the planar seat (12) of the catheterization connector.

6. The method of Claim 5 further characterized by the steps of configuring said retention member (28) with a plurality of barbs which extend radially toward said adhesive member (24), acute to a longitudinal axis of the retention member (28).

7. The method of Claim 6, further characterized in that said step of inserting said retention member (28) into said hole (14) comprises the step of elastically deforming said barbs to permit said retention member (28) to insert into said hole (14) but to prevent said retention member (28) from extracting from said hole (14).

8. The method as claimed in Claims 5 or 6 further characterized by the steps of:

providing a plurality of retention members (28) corresponding to the number of holes (14) in said catheterization connector; and

positioning said retention members (28) on said anchoring apparatus (22) such that the position of each retention member (28) corresponds with a hole position of said catheterization connector.

9. The method as claimed in Claim 5 or any one of Claims 6-7 when dependent therefrom, further characterized by the step of severing the retention member (28) between said adhesive member (24) and said connector to permit disengagement between said connector and said adhesive member (24).