Abstract:

Objective: The aim of the present observational study was to identify safe and suitable venipuncture sites for nursing in the clinical setting using ultrasonography to measure the depth and cross-sectional area of each superficial vein before and after tourniquet application as well as the distance between each superficial vein and the median nerve or brachial artery.

Methods and Results: Twenty healthy volunteers (21.8 [0.6] y) were recruited. The visible rate of each superficial vein before and after tourniquet application was 65% for the basilic vein, 90% to 95% for the median cubital vein, and 65% to 80% for the cephalic vein. The cross-sectional area of the median cubital vein after tourniquet application was significantly larger than that of the basilic vein and cephalic vein. The distance between the basilic vein or median cubital vein and median nerve was significantly smaller than that between the cephalic vein and median nerve. The distance between the basilic vein or median cubital vein and brachial artery was significantly smaller than that between the cephalic vein and brachial artery.

Conclusions: These results demonstrated that the cephalic vein at the cubital fossa is a relatively safe venipuncture site because of its distance from the median nerve and brachial artery. When puncturing the cephalic vein is difficult because it is not visible, the median cubital vein at the cubital fossa may be selected for venipuncture due to its cross-sectional area and visibility; however, care is needed to avoid penetrating the vein because the median nerve and brachial artery are located underneath.

Reference:


Full Text