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STUDY OF OSTEOPOROTIC FRACTURES (V2)

Protocol for Esthesiometer Touch Sensitivity Probes.

1. Introduction:

The object of this test is to determine the sensitivity of the feet to light touch. Diseases and abnormalities affecting neurological function, such as peripheral neuropathy, can reduce the sensitivity to light touch. Loss of sensitivity in the feet can result in problems with gait and balance, leading to falls. Sensitivity will vary depending on the temperature of the foot.

2. Equipment:

Von-Frey type esthesiometer probes (set of six probes: 3.22, 3.61, 4.17, 4.56, 5.07, and 6.10). The "numbers" are the log force applied, in grams. The probes are numbered in order of increasing filament size:

1 = 3.22

2 = 3.61

3 = 4.17

4 = 4.56

5 = 5.07

6 = 6.10

Random ABC table. Heating pad. Portable space heater with blower.

3. Subject Preparation:

This test is performed on bare feet, with the subject lying down on an exam table or sitting with foot propped up on a chair.

Warm the subject's feet with a heating pad and blow air heater. Touch the top of the foot with the skin of your forearm to test for warmth. The skin on the foot should feel tepid to the touch, not cool. If the skin remains cool, continue warming for five minutes. If the skin still remains cool, record this on the scoring form and continue with the test.

Show subject the probe for reassurance.

"This part of the exam tests the sensitivity of your feet to a very light touch. I am going to test this with some very fine plastic filaments that bend when they touch your skin. I will test your big toe on each foot."

4. Measurement Procedure:

a) Demonstrate with the thickest filament (#6) on the hand. With subject watching, say:

"I'm going to touch you as I say either A, B, or C. Like this, A (*pause*) B (*pause*) C. (*Touch the hand with filament #6 on one letter.*) I want you to tell me which letter I'm saying as I touch you. Some of the filaments are very thin and therefore very difficult to feel. (*Touch the hand with filament #1*) If you don't feel anything, just say so."

Then repeat the demonstration on the foot using filament #6.

"Look away and close your eyes. Which letter am I saying as I touch you? A (*pause*) B (*pause*) C."

When she understands, begin the test.

b) Begin with the thinnest filament (#1). Start with the big toe of the right foot. Say:

"Let's start with your big toe on the right. (*Touch the toe.*) If you don't feel anything, just say so. Ready! A (*pause*) B (*pause*) C."

Use the random ABC table to determine when to touch.

Abbreviate to just "Ready! A, B, C" for subsequent trials.

c) Filament progression and scoring:

There will be either one or two trials on each toe for each filament size tested. For each trial, use the random ABC table to determine when to touch.

i) If the subject misses on the first trial or says she doesn't feel anything, go immediately to the the next higher number (thicker) filament.

ii) If the subject identifies the correct "letter" on the first trial, test the toe again in the same place. If she she gets it right on both trials, stop at that filament.

iii) If the subject misses on the second trial or says she doesn't feel anything, go on to the the next higher number filament.

d) Record the number of the lowest number (thinnest) filament identified correctly twice (i.e, no errors).

If no filament is felt, check NONE FELT (0).

If the big toe is missing, test on the adjacent toe. If all toes are missing, check UNABLE TO TEST (8).

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e) Move on to the left foot.

f) Site to test and callus:

Always test on a part of the toe that is as free from callus as possible. Find a spot on the pulpy part of the toe (at the end) that is relatively free of callus, and test there. However, if the end of the toe is callused and the bottom of the toe is not, or is less callused, then test on the bottom of the toe.

If the test must be performed on a callused area, check "Yes" (1) for "Tested on callus?"

g) Special precautions:

i) Say the letters in an even tone with pauses of about one second between letters.

ii) Don't give verbal or body language clues by lifting your head, changing your tone, etc., after touching the toe.

iii) The filament should just touch the toe. If you accidentally scrape the filament along the skin instead of just touching it, repeat that trial.

iv) Use the random letter sequence for each trial.

v) Test on a relatively callus free part of the toe. Be consistent from trial to trial in the placement of the filament.

vi) If the foot remains cold to the touch prior to testing, check "Yes" (1) for "Extremity cold to touch?"