



NUCLEAR TRANSIT STUDY FACT SHEET

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A subgroup of people have constipation because of disordered nerves and muscles of the colon itself. In these individuals, movement of faecal material within the colon is markedly delayed. Patients with delayed colonic action (medically termed colonic inertia) have difficulty with moving stool through the colon, which is about 3 feet in length. In patients with colonic inertia, stool may remain stored in the right or middle portion of the colon and not progress adequately to the rectosigmoid colon. It is the rectosigmoid colon that is responsible for the propulsion and transfer of stool out of the body – the processes involved in defecation.

Colonic Inertia

The symptoms of colonic inertia include long delays in the passage of stool accompanied by lack of urgency to move the bowels. It has been determined that the normal frequency of stool passage is 3 or more bowel movements per week. Individuals with colonic inertia often do not pass a stool for 7-10 days at a time, at times longer. Sometimes colonic inertia is accompanied by abnormalities in motility of the upper intestine including delayed emptying of the stomach and small intestinal pseudo-obstruction [a disorder that causes symptoms of blockage, but no actual blockage].

Colonic Marker Studies

Your physician may also have you undergo a colonic marker study (Nuclear Transit Study), the most common clinical method of examining the rate of colonic movement. This simple test measures the movement of substances that enter and leave the colon over time. The time required to excrete these substances is called colonic transit. When the colonic marker study was originally developed, a substance such as a dye, which was not broken down in the intestine, was administered by mouth. The rate of colonic emptying was measured by the duration of time to completely excrete this dye.

To perform a Nuclear Transit Study a small drink (milk or fruit juice) with a marker is ingested by mouth. These markers are clearly visible on an abdominal x-ray. Following ingestion, the substance dissolves and is harmlessly released into the small and large intestines. A series of pictures are taken over 3 days after ingestion of the marker. It is important to avoid laxatives for approximately one week prior to and during this study. Their use can alter the results of the study by speeding the movement of the marker through the colon. In a nuclear transit test the child swallows a small drink (milk or fruit juice) with a flavourless marker (Technetium Colloid or Gallium). Following ingestion, the substance dissolves and is harmlessly released into the small and large intestines. A series of pictures are taken over 0-3 days after ingestion. It is important to avoid laxatives for approximately one week prior to and during this study as stimulant use can alter the results of the study by speeding the movement of the marker through the colon. The standard protocol for Transit Study is to test only in children old enough to cooperate (over 1 to 2yrs) and after failure of at least 6 months of medical therapy. The drink with flavourless tracer is given at 9 AM in a small drink after overnight fasting. Radio-active images are collected between 0 and 2 hours (to monitor gastric emptying), at 6 hours (to monitor the small bowel) and at 24, 30, and 48 hours to investigate colonic motility. Normal diet and activity resumes after gastric emptying pictures are complete. Whilst this test is very time consuming, usually taking several days, the benefits to your medical team in determining a diagnosis and treatment is very valuable. Parents should not be concerned by the 'radio-activity', as the total radiation dose is only about the same as two ordinary x-ray pictures. The tracer is no longer radio-active after 4-5 days, so it does not matter if no stool is passed during the test.

What should be done if the marker study shows an abnormality? Since a variety of causes may result in the development of delayed colonic transit, further evaluation is in order to rule out diseases within the colon, medical disorders, or pharmacologic causes. At this point one of the NID Medical Team believe that there is a functional abnormality of the colon then a recommendation may be made to have a biopsy be taken to determine further evidence of a neuromuscular abnormality.

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