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IIkka K. Kuuliala and Hans J. Göransson

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Adverse Reactions After Iohexol Lumbar Myelography: Influence of Postprocedural Positioning

Ilkka K. Kuuliala[1]
Hans J. Göransson

A prospective study of 110 patients having iohexol lumbar myelograms indicates that patient positioning does not significantly influence the frequency of adverse postprocedural reactions. Thus, after the procedure, patients may be allowed to choose either ambulation or bed rest with their heads raised.

Adverse postmyelographic reactions may be due to either CSF leakage caused by lumbar puncture or CNS irritation caused by contrast material [1]. Management of those symptoms should be the opposite of each other (bed rest or erect position, respectively) depending on which of the possible causes is primarily responsible. Bed rest for 24 hr after lumbar puncture is a common practice. In myelograms performed with metrizamide (currently the most widely used contrast agent), CNS irritation has been reported to be the major cause of postprocedural symptoms, with the incidence of side effects about equal in ambulatory patients and those confined to bed [1–3]. Iohexol (Omnipaque) has been noted to cause less postmyelographic morbidity than metrizamide [4–7]. With the advent of a safer contrast agent it is possible that CSF leakage surpasses the irritative effect of contrast material as the major cause of postprocedural symptoms. On this basis we undertook a prospective study to determine whether postprocedural positioning after iohexol myelography has any influence on postmyelographic symptoms.

Materials and Methods

One hundred and ten consecutive iohexol lumbar myelograms form the basis of this study. The myelograms were divided into two groups, each consisting of 55 consecutive patients. Group 1 patients were kept in bed with their heads raised about 30° after the procedure until the following morning (however, lavatory use was allowed). Patients in group 2 were encouraged to be ambulatory after the procedure, depending on their condition. Patients in both groups were encouraged to drink sufficiently after the myelographic procedure.

Before the procedure, patients were informed of the purpose of the study, otherwise myelography was performed according to strict routine practice. Patients were usually referred because of a suspected lumbar disk herniation or spinal stenosis.

Preprocedural symptoms were registered and patients were premedicated with rectal diazepam (10 mg). Myelography was performed via L2–L3 or L3–L4 puncture using a 22-gauge needle. A few milliliters of CSF were removed. Iohexol concentration was 240 mgI/ml, with the typical dose being 12 ml of contrast. Radiographs in the prone, lateral decubitus, and oblique positions were obtained so that the lumbar spinal canal and conus region were thoroughly visualized.

The following morning every patient was interviewed and asked to describe his or her postprocedural symptoms. Patients were specifically asked about headache, nausea, vomiting, worsening of radicular pain, and accentuation of preprocedural symptoms. They graded their symptoms as none, slight, moderate, or severe, and the duration of the symptoms was also registered via inquiries later on as needed. The frequency and severity of adverse reactions in the two patient groups were then compared.

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[1] Both authors: Department of Radiology, Central Hospital of Kanta-Häme, 13530 Hämeenlinna, Finland. Address reprint requests to I. K. Kuuliala, Kankaantaustantie 43 D, 13100 Hämeenlinna, Finland.

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Results

Table 1 summarizes the patient groups with respect to several variables; no significant differences are seen. Postmyelographic adverse reactions are noted in Table 2. Seventy-one percent of patients in the nonambulatory groups and 66% in the ambulatory group were totally symptom-free. Adverse reactions typically lasted less than 24 hr. The most common symptom was slight or moderate headache either alone or in conjunction with nausea, vomiting, or accentuation of radicular pain. No one with these symptoms of short duration graded his or her symptoms as severe. One patient reported having diarrhea and another patient had tingling sensations all over her body. Five patients experienced accentuated radicular pain as the only symptom. Altogether, 15 patients in the nonambulatory group and 16 in the ambulatory group had these mild or moderate symptoms on the day of the examination but not longer.

One patient in group 1 and three patients in group 2 had symptoms lasting for several days. These are summarized in Table 3. These patients graded their symptoms as moderate or severe, and they typically were accentuated in erect position, causing the patients to be confined to bed for up to 1 week.

TABLE 1: Comparison of Nonambulatory and Ambulatory Patient Groups

	GROUP 1 (Bed Rest)	GROUP 2 (Ambulation)
Gender		
Female	23	25
Male	32	30
Age (years)	16–73 (mean, 44.5)	18–72 (mean, 43.7)
Volume of contrast	12–15 ml (mean, 12.7 ml)	10–15 ml (mean, 12.8 ml)
Cranial extension of contrast		
Th 9–12	5	10
Th 6–8	41	41
Th 1–5	9	4

Note.—Group 1 and group 2 each consisted of 55 consecutive patients.

TABLE 2: Incidence of Adverse Reactions

	GROUP 1 (Bed Rest)	GROUP 2 (Ambulation)
No adverse reactions	39 (71%)	36 (66%)
Mild or moderate symptoms during the examination day	15 (27%)	16 (29%)
Headache and/or nausea	10	14
Mild	7	9
Moderate	3	5
Severe	0	0
Accentuation of radicular pain only	3	2
Diarrhea	1	None
Tingling sensations	1	None
Prolonged symptoms (see Table 3)	1	3

Note.—Group 1 and group 2 each consisted of 55 consecutive patients.

TABLE 3: Prolonged Symptoms

GROUP 1 (Bed Rest)

Patient 1. Moderate headache, nausea, and vomiting, lasting 3 days; worse in erect position.

GROUP 2 (Ambulation)

Patient 1. Severe headache and mild nausea, lasting 6 days; worse in erect position.

Patient 2. Severe headache, mild nausea, and vomiting, lasting 7 days; worse in erect position.

Patient 3. Moderate headache and nausea, starting 2 days after the procedure and lasting 3 days; worse in erect position.

Discussion

Our study results indicate that positioning after iohexol lumbar myelography does not seem to have a significant influence on the incidence of adverse postprocedural reactions. About two-thirds of patients in both groups were completely free of symptoms. Among the ambulatory and nonambulatory patients who did experience symptoms, they were usually mild or moderate, lasting no longer than the examination day. A slight tendency toward more frequent nausea and/or headache was seen in the ambulatory group, but the number of patients with different mild symptoms was not dependent on postmyelographic positioning.

One patient in the nonambulatory group and three in the ambulatory group had symptoms lasting for several days, which worsened in the upright position (see Table 3). Postmyelographic adverse reactions may be due to either the lumbar puncture or the irritative effect of contrast, or both [1–2]. The rather rapid elimination of intrathecally injected iohexol [8] with respect to the duration of symptoms and the influence of position on the severity of headache speaks in favor of the role of lumbar puncture as the major causative alternative in these patients. Prolonged symptoms are now and then seen after a lumbar puncture [9] and it may be possible that some patients are especially sensitive, experiencing nausea and/or headache after a spinal puncture whatever the postprocedural position might be. However, we cannot with certainty explain the reason or determine the possible influence of positioning on this kind of symptom prolongation seen in some of the patients in our study.

Results of this prospective study thus indicate that after iohexol lumbar myelography patients may be allowed to choose either ambulation or bed rest with their heads raised. According to our experience, positioning does not significantly correspond to adverse postprocedural reactions.

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