Tumours of the central nervous system: an epidemiologic survey

The average annual age-adjusted incidence of tumours of the central nervous system in the United States is 5.3/100 000[1] — 6.3/100 000 for males and 4.4/100 000 for females. Such tumours account for 1.5% of all cancers.[1]

In any epidemiologic investigation it is important to define and classify the disease being studied. The Alberta Cancer Registry is a provincial population-based registry. Information on all new cases of cancer is obtained from pathology reports, operative reports, discharge summaries, and registrations and referrals from the community. Between 1967 and 1981 the registry recorded 1218 cases (745 in males and 473 in females) of tumours of the central nervous system. The age-specific incidence peaked slightly in children and was highest in patients aged between 55 and 69 years (Table I).

Seventeen areas in Alberta were examined. The incidence for the Medicine Hat area, which is in the southeastern part of the province, was significantly lower than the provincial mean. Using the exponential weighted moving average method and the cumulative sum technique,[2] we found that the overall incidence rate in Alberta had not changed since 1967.

In conclusion, the average annual age-adjusted incidence rate of tumours of the central nervous system in Alberta between 1967 and 1981 was 5/100 000, which is close to that in the United States.

Table I—Age-specific incidence of tumours of the central nervous system, Alberta, 1967–81

Age (yr)	No. of cases (and rate/100 000)	
	In males	In females
0–4	34 (3)	24 (2)
5–9	37 (3)	23 (2)
10–14	34 (3)	21 (2)
15–19	25 (2)	14 (1)
20–24	21 (2)	22 (2)
25–34	69 (4)	52 (3)
35–44	94 (6)	64 (5)
45–54	130 (11)	79 (7)
55–64	159 (18)	97 (11)
65–69	71 (22)	34 (11)
70–100	71 (13)	43 (7)
Total	745 (6.053*)	473 (3.968*)

*Crude rate.

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Therapeutic window for amitriptyline analgesia

Amitriptyline appears to have an independent analgesic action that may occur at lower doses than does the antidepressant effect.[1-10] A therapeutic window may exist for this effect in some patients,[10] as it may for the antidepressant effect in others.[11-13]

I have observed a therapeutic window for the analgesic effect of amitriptyline in seven patients with postherpetic neuralgia[6] or painful diabetic neuropathy.[1] They ranged in age from 50 to 79 years and had had severe pain for 1 to 7 years. Treatment with low doses of amitriptyline reduced the pain from severe to mild in all seven patients. The analgesic dose ranged from 20 to 100 (median 50) mg. When the dose was increased the pain again became severe, and when it was decreased the pain again became mild.

This is the first report of a therapeutic window for the analgesic action of amitriptyline. The window concept suggests that there is a range of doses and blood levels at which an analgesic or antidepressant effect occurs. If the dose and blood level are below or above this range, or window, the desired effect does not occur.

Three of the patients I have described had been taking part in a double-blind, placebo-controlled study of amitriptyline conducted by me and my colleagues.[10] A therapeutic window was not seen in any of the 24 patients participating in the study when they were taking a placebo. The doses and blood levels of nortriptyline and amitriptyline associated with pain relief were unpredictable but were generally lower than those producing an antidepressant action. Increased blood levels corresponded to the higher doses associated with increased pain. However, this therapeutic window did not seem to occur in all patients. Ten patients in whom the pain control was merely suboptimal experienced more side effects when the dose was increased. In the remaining 11 patients the analgesia was judged to be adequate, and the dosage was not changed.

We do not know how common this window is or whether it occurs with drugs related to amitriptyline, but the effect may be missed if the initial dose is too high. In fact, 50% of the patients in our study[10] had been treated with high doses of amitriptyline before their entry into the study. Alternatively, the window effect may be confined to a small proportion of patients.

I have described these seven patients to draw attention to a phenomenon that may be common but unrecognized and hence result in treatment failure in patients with conditions such as postherpetic neuralgia and painful neuropathies in which amitriptyline may be the only effective agent. I suggest that, particularly in the elderly, amitriptyline initially be given in a low dose (as little as 10 mg) and that small increments (as little as 10 mg) be made at intervals of 5 to 7 days, with frequent assessment of the severity of the pain.

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Screening test for dementia in personal care home

I was recently appointed medical director of a newly constructed personal care home (nursing home). Guidelines established by the Manitoba health organizations for laboratory tests for residents of such homes (unpublished data) were adopted and expanded to include screening for dementia.

Although most of the residents had been referred from geriatric units and long-term-care municipal hospitals, six of them were found to have previously unrecognized hypothyroidism and three to have positive results of serologic tests for syphilis. They were subsequently investigated and treated.

As a result of this finding, a 3-month study was conducted of all patients who were taking either antihypertensive agents or diuretics in an attempt to determine the incidence of postural hypotension in the personal care home.

Of the patients studied, 15 were being treated for essential hypertension and 31 patients for congestive heart failure. No patients with postural hypotension were identified. However, nine patients were found to have low blood pressure (a systolic pressure of less than 120 mm Hg and a diastolic pressure of 70 mm Hg or less), so their drug regimens were modified. Three months later there was no increase in the blood pressure of the two patients in whom antihypertensive therapy had been discontinued or in the seven patients in whom the dose had been decreased. None of the patients required additional medication.

These results confirm what is already known about treating the elderly. Patients with dementia must undergo a thorough work-up, including complete history-taking and physical examination. As well, particular attention must be given to possible organic causes of the dementia, such as hypothyroidism, neurosyphilis and inappropriate drug therapy. Patients who are receiving antihypertensive agents and diuretics must be monitored closely since with a decreased fluid intake, which is common in the elderly, and a decreased salt intake from the controlled diets in a personal care home the dose of diuretics may become excessive.

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"Potato picker's plight"

The inflammatory conditions resulting from overuse of the medial and lateral epicondyles are well known to physicians who treat middle-aged "weekend" athletes. Tennis elbow, or epicondylalgia, is a prime example of such overuse and is readily identified by the characteristic tenderness of the muscles and the unwillingness of the patient to forgo the precipitating and aggravating sport.

However, recently a 19-year-old woman presented with a remarkable variant of this disorder, which she had dubbed "potato picker's elbow". Except for her recent seasonal employment as a potato picker she was unemployed and was therefore reluctant to rest the affected area. Her task was to pick out the unsuitable vegetables from the potatoes that passed by her on a conveyor belt. The repetitive elbow and wrist flexion in the 2 days before presentation had caused bilateral tenderness over the muscle bellies proximal to the flexor tendons of the wrist.

I had previously been unaware of this type of disorder, undoubtedly an industrial injury spawned by mechanization. I propose that it be recognized as "potato picker's plight" in deference to this patient's originality and in recognition of the underlying economic circumstances.

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Interpretation of diagnostic data [correction]

We apologize to Dr. David L. Sackett and his colleagues from the department of clinical epidemiology and biostatistics, McMaster University, Hamilton for the typographic error that appeared in part 5 of their series on interpreting diagnostic data (*Can Med Assoc J* 1983; 129: 947–954). In Table VI the second line under the heading "Diagnostic test" should have read (with the correction in italics): "Symptoms of *atypical* angina". —Ed.