A retrospective observational study followed 25 patients ultimately diagnosed with costochondritis. All had originally presented to an emergency department with chest pain and had normal cardiac enzymes and chest radiographs. The patients were identified from hospital computer records and were referred to a rheumatologist, who confirmed the diagnosis. The average time to diagnosis was 9.4 months (range 0–57 months). Healthcare utilization was significantly reduced after the diagnosis of costochondritis (TABLE).²

A cohort study evaluated 40 consecutive patients who had coronary angiography, which showed less than 30% stenosis of all major coronary arteries, who were following up at a clinic for evaluation of their (noncardiac) chest pain. They were compared with 40 controls with known coronary artery disease with at least 60% stenosis of one major coronary artery.³

Using standard rheumatologic criteria for diagnosis, patients with normal coronaries had higher prevalence of costochondritis (10% vs 0%; \( P < .04 \)) and fibromyalgia (30% vs 2.5%; \( P < .04 \)) compared with the control group.³

TABLE

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Before diagnosis of costochondritis</th>
<th>After diagnosis of costochondritis</th>
<th>( P )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest pain admissions</td>
<td>39</td>
<td>6</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Minor investigations</td>
<td>169</td>
<td>17</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Major investigations</td>
<td>30</td>
<td>0</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Inpatient days</td>
<td>137</td>
<td>5</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Total expenditure (£)</td>
<td>54,122</td>
<td>2,002</td>
<td>—</td>
</tr>
</tbody>
</table>

Is there a difference in the absorption of omega-3 fatty acids from different sources?

Evidence-Based Answer

Docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) absorption is similar when administered as fatty fish or supplemented through fish oils. (SOR: B, based on small RCTs.) DHA and EPA absorption may be enhanced by administering emulsified fish oil. (SOR: B, based on 2 single-dose RCTs.)

In an unblinded 16-week RCT, equivalent doses of EPA and DHA were provided to 23 patients as either 3 servings of albacore tuna and 1 serving of salmon or 17 doses of a fish oil supplement every 2 weeks (daily average combined EPA and DHA: 485 and 482 mg, respectively).¹

Both sources resulted in similar absorption at 16 weeks, as measured by the increase in EPA and DHA content in red blood cell membranes (from 4.02 to 6.17 g/100 g in the fish group vs from 4.33 to 6.16 g/100 g in the capsule group; \( P = \text{NS} \)) and the plasma phospholipid fraction (3.75 to 6.8 g/100 g vs 3.41 to 5.55 g/100 g; \( P = \text{NS} \)).¹

In contrast, in an unblinded, 8-week RCT, 71 patients received 400 g cooked salmon, smoked salmon, or cooked cod weekly, 15 mL cod liver oil (CLO) daily, or placebo. EPA increased in the serum (in mmol/L) for every gram of EPA taken daily in a linear fashion—smoked salmon: 0.26; salmon fillet: 0.39; CLO: 0.14. Similarly, DHA increased as follows—smoked salmon: 0.10; salmon filet: 0.16; CLO: 0.04. The cooked cod and placebo groups did not have increases in serum EPA or DHA.²

In a randomized, single-dose, crossover RCT involving 10 patients, a 4-g dose of fish oil was provided as a

flavored emulsified oil and in an oil-filled capsules. The mean change in plasma phospholipid fatty acids was 0.67% with emulsified oil versus 0.45% with oil-filled capsules (P<.01). In a randomized, single-dose, crossover RCT, 24 patients received a mixture of fish, borage, and flaxseed oils as the natural and emulsified form. The area under the curve (AUC), measuring the extent of absorption, for EPA in plasma was 414.2 hr·mg/L with emulsified oil compared with 139.3 hr·mg/L with natural oil. The AUC for DHA in plasma was 219.4 hr·mg/L with emulsified oil compared with 97.1 hr·mg/L with natural oil.

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How are central causes of vertigo distinguished from peripheral causes?

Evidence-Based Answer
On bedside examination, the combination of a normal horizontal head impulse test, direction-changing nystagmus on eccentric gaze, and skew deviation (vertical ocular misalignment) has a high sensitivity and specificity for presence of a central lesion in vertiginous patients. (SOR: B, based on a cohort study.) For imaging, magnetic resonance imaging (MRI) is more sensitive than noncontrast computed tomography (CT) for early detection of central lesions. (SOR: C, extrapolated from a comparison cohort trial that included all stroke syndromes.)

A prospective cohort study evaluated 240 consecutive patients with isolated cerebellar stroke and identified a subset of 25 patients (10.4%; mean age 64 years, 44% women) with symptoms suggestive of vestibular neuritis (VN) rather than cerebellar stroke (pseudo-VN). Isolated spontaneous prolonged vertigo with postural imbalance were the only presenting symptoms in 24 (96%) of the 25 patients. All patients underwent MRI evaluation. Physical examination findings that helped differentiate pseudo-VN from true VN were a normal (negative) head impulse test of vestibulo-ocular reflex function (ie, no corrective refixation eye saccades after the examiner thrusts the patient’s head to either side) and no unilateral paresis with calorice testing.

A subsequent prospective, cross-sectional cohort study evaluated the overall sensitivity and specificity of a 3-step bedside oculomotor examination to differentiate stroke from acute peripheral vestibular disease in patients with high risk for stroke presenting with acute onset of vertigo, nystagmus, nausea/vomiting, head-motion intolerance, and unsteady gait. The reference standard was confirmation of an acute stroke by diffusion-weighted MRI. Of the 101 patients (65% men, mean age 62 years) in this cohort, 25 had peripheral disease and 76 had a central lesion.

The combination of a normal (ie, negative) horizontal head impulse test; direction-changing nystagmus on eccentric gaze; and skew deviation (vertical ocular misalignment) was 100% sensitive and 96% specific for the presence of a central lesion (positive likelihood ratio [LR+], 25; 95% CI, 3.7–170) and had a negative LR of 0.00 (95% CI, 0.00–0.11).

A prospective comparison study assessed the sensitivity of MRI versus noncontrast CT in 356 patients (mean age 76 years) for the detection of clinically suspected acute stroke. The study included all stroke syndromes and all patients received both tests. MRI readings included both diffusion-weighted imaging and gradient-echo imaging. Acute stroke was the final diagnosis by treating physicians in 217 patients.

Compared with the final diagnosis, MRI had a sensitivity of 83% (95% CI, 78%–88%) and a specificity of 97% (95% CI, 92%–99%). Noncontrast CT had a sensitivity of 26% (95% CI, 20%–32%) and specificity of 98% (95% CI, 93%–99%).

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