Chemotherapy for Brain Metastases: More Helpful than It’s Given Credit For

There’s a general concept out there that chemo is ineffective in treating brain metastases, and in fact, I’ve mentioned it in some comments here in the past. The reasoning behind this is that we know there’s a blood-brain barrier, and we’ve presumed that chemo is blocked from crossing it. But when CT or MRI scans are done with IV contrast, it often collects in brain metastases, and there’s also often edema around brain metastases: these observations suggest that the blood vessels around brain mets may be disrupted. One study, for instance, showed that in patients who received chemo before surgery, cisplatin concentrations in brain metastases were the same as the levels in tumors outside of the brain (abstract here).

But the more important issue is that in the studies that have actually looked at responses of brain metastases in patients who received chemotherapy and not radiation. In a series of trials that actually directly compared responses of chemo inside and outside of the brain, the response rates in the brain were very similar to the response rates elsewhere in the body. For instance, an Italian study by Crino and colleagues (abstract here) included patients with brain metastases (15-17% in the two chemo arms being compared) and found response rates of 39-41% of the brain metastases, actually higher than the response rate outside of the brain. Another interesting trial by Robinet and colleagues from France directly tested whether it helped to give early whole brain radiotherapy (WBRT) with chemo compared with starting with chemo alone, enrolling 176 patients with previously untreated lung cancer with brain metastases to early or delayed WBRT along with cisplatin/navelbine chemo (paper here). They found that the response rate in the brain to chemo alone, 27%, was not significantly different from the response rate to chemo with WBRT, 33%. The investigators also found that survival was just as good if you started with chemo and held off on WBRT initially.

In truth, this would represent a change from my typical practice and the approach that most oncologists follow, based largely on the old teaching, not supported by the trials, that chemo isn’t up to the task of treating brain metastases. But given the reluctance of many patients to undergo WBRT, at least without a definite need for it if chemo can provide comparable results without it, it may be worth revising our treatment approaches to get in step with the evidence.