



SCRIPT DOCTOR: MEDICINE IN THE MEDIA

Fact-checking Fiction

By Andrew Holtz, MPH

A young doctor and an older man step through the buzzing activity of a hospital emergency department. The older man sits on the edge of an empty bed and the doctor pulls up a chair. The doctor quizzes his patient, trying to figure out why he had a bad reaction to his medication. It turns out the man had switched drugs on his own, using some leftover pills from a friend. Taken aback, the doctor asks the man why he would risk his health by taking someone else's medicine.

"I've got no insurance. You know how much these drugs cost?"

Then they get up and do it again. And again.

Having an on-set medical adviser is one of the ways medical shows work to assure accuracy.



Andrew Holtz, MPH, is a former CNN Medical Correspondent and the author of "The Medical Science of House, M.D." This column examines mass media programs, particularly entertainment TV, for insight into popular perceptions, so that rather than merely wincing at distortions or oversimplifications in the portrayals of medicine on these shows, health care professionals can learn something from media professionals about the way that medical and health topics are presented.

Send questions to him about how the media treat medical topics or suggestions for future columns about a

particular show or topic to discuss to OT@lwwny.com

This isn't an ER; it's the set of ER, the elder statesman of primetime medical dramas. Each movement, each word of the "doctor" and his "patient" are scripted by writers, and then played out in front of the cameras and crew squeezed between the ER beds and nurses station. But just behind the camera, alongside the director, there's a chair for someone who wouldn't be on the sets of most other TV shows.

The occupant of that chair is an MD. He is listening to the pronunciation of medical jargon and watching to

see that the right equipment is used at the right time in the right way. Having an on-set medical adviser is one of the ways medical shows work to assure accuracy.

At ER, MDs have always been in the mix. One of the first writers was Neal Baer, MD, who eventually rose to become an executive producer of the show. Dr. Baer introduced other physicians to Hollywood, including his medical school friend David Foster, MD.

Dr. Foster worked with ER and other shows, while continuing to prac-

tice medicine. But then he became a full-time writer on the staff of House. He also sits in on the filming of many of the medical scenes, but it is a nurse who has the lead role in monitoring accuracy on the House set.

"She is the one who is there for all the medical scenes. She makes sure they are holding the scalpel correctly, or a patient is draped correctly, or people are wearing gowns when they should be wearing gowns, or that when they are in x-ray that they are wearing protective lead aprons, that type of thing," Dr. Foster said.

It's ironic that a nurse is the primary on-set medical adviser for House. The show has been criticized by nurses for often portraying them as little more than housekeepers and rarely showing nurses providing direct medical care.

In each scene, it is not only the actions and words of the actors that must be checked for medical accuracy; bedside monitors, screens, x-rays, and other images added to the visual flavor of a show can also introduce errors.

If the actors are talking about a suspicious mass on a lobe of a patient's lung, then the image they are huddled

NSCLC

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who constituted a very small minority of enrollees, the data are far shakier, Dr. Langer said.

"As of 2006, we have observed a clear-cut benefit for adjuvant cisplatin-based therapy, particularly in Stage II and Stage III NSCLC. In one primary trial—CALGB 9633—devoted to Stage IB NSCLC and in subset analyses of other, larger trials that included Stage IB as well as earlier stages, the evidence for benefit in Stage IB NSCLC is not compelling. This general reservation is amplified by the LACE meta-analysis.

"Under these circumstances, it may be necessary to repeat controlled, randomized trials in Stage IB NSCLC comparing standard chemotherapy to observation. Finally, advanced age is not an impediment to standard adjuvant therapy in fit individuals."

Some Dismiss Role of Adjuvant Carboplatin

"A lot of my colleagues have taken great delight in looking at these data and dismissing the role of carboplatin in the adjuvant setting," Dr. Langer said.

"I would argue that we need to exercise some degree of caution. There are several inconvenient truths regarding CALGB 9633. The three-year disease-free survival still favors adjuvant treatment, as does three-year overall survival. There is a nine percent absolute difference in recurrence and death rates. Median follow-up is still under five years, and I would argue, too, that this is probably the second premature reporting of this trial. While 150 deaths were needed for analysis, only 131 deaths have occurred."

Carboplatin-based therapies do offer advantages, though, he said: "The best results obtained in Stage IB have been attained with carboplatin-paclitaxel, not cisplatin. The subset analysis in four-cm tumors still demonstrates a survival benefit. This has not been tested in Stage IIB-III in the adjuvant setting, so the absence of data does not prove absence of benefit. And finally, a substantial percentage of adjuvant patients are poor candidates for cisplatin-based therapy because of age and various comorbidities."

Clinically, statistically significant overall survival benefits have been observed with platinum doublets in Stage II-III disease overall in three to four cycles, he said, noting that Stage IB treatment still needs to be individual-

ized: "For now, in fit patients, most of us would recommend cisplatin-based doublets. Despite a median age of 59 to 62 in trials, older patients often benefit. Preoperative adjuvant chemotherapy is still being investigated," he said.

The next Intergroup trial (the Eastern Cooperative Oncology Group 1505 study) in early-stage NSCLC will take bevacizumab, which has shown a benefit in advanced disease, and look at that in combination with chemotherapy versus chemotherapy alone, he said.

'Premature to Criticize Trials of Carboplatin

Asked for his opinion, A. Philippe Chahinian, MD, Professor of Medical Oncology at Mount Sinai School of Medicine in New York City, said, "I agree that carboplatin is not dead. It is premature to criticize trials of carboplatin.

"If you look at Stage IIIB or IV disease, carboplatin does as well as cisplatin, or the difference is extremely small. Based on results in advanced stages of disease, carboplatin is not inferior to cisplatin."

The CALGB trial is important because it was specifically designed for Stage IB disease, Dr. Chahinian said.

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"The results are underpowered because there were only 170 patients per arm, which is well below expected because early results were positive.

"The differences in disease-free survival were very large. The three-year survival is still significant. More importantly, for the largest tumors, there was a significant favor in overall survival in the paclitaxel group."

CALGB is still a positive trial, he said, and deserves to be confirmed with an appropriately powered trial with larger numbers of patients and compared with cisplatin and vinorelbine in an adjuvant setting.

Stabilizing Bone after Vertebral Fracture Leaves Room for Meds

By Robert H. Carlson

SAN ANTONIO, TX—Vertebroplasty and kyphoplasty present a great opportunity for oncologists treating cancer-related vertebral pain because treatment medication can be added to the cement.

That add-on benefit might not have occurred to those who originated the procedures, but it does make sense, said a speaker here at the International Meeting on Cancer Induced Bone Disease.

"Nobody said what to put in the cement," said Joseph M. Lane, MD, Professor of Surgery at the Hospital for Special Surgery in New York City.

Surgeons using vertebroplasty



Robert H. Carlson

Joseph M. Lane, MD, said he and colleagues have been adding a monthly dose of zoledronic acid to the cement in certain cases, which he said results in local control of the bone as well as providing systemic treatment. "In our studies we have found that up to 10 percent replacement [of cement with an agent] will not weaken the cement, so there is an enormous volume of space available to put material in," he said.

"Patient pain is related to the tumor and the mechanical instability, and radiation will not address those—you want to reestablish stability. On the other hand, reestablishing stability without controlling the tumor is of no advantage either—that's why we're looking for some sort of combination approach so we can control the tumor as well as regain the stability for the vertebral body."

inject cement directly into a myeloma lesion to stabilize the bone. Kyphoplasty changes the dimensions of the bone—an orthopedic balloon is inserted into the fractured bone and inflated to reduce the fracture and correct the alignment. After that the balloon is removed and the cement put in.

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"In our studies we have found that up to 10 percent replacement [of cement with an agent] will not weaken the cement, so there is an enormous volume of space available to put material in," he said.

Vertebral fractures occur commonly during treatment for multiple myeloma, as the combined tumor resorption and the drug-related osteoporosis combine to generate low energy fragility fractures, Dr. Lane explained. These can result in pain, deformity, gait abnormalities, pulmonary compromise, and increased risk of falls.

"Patient pain is related to the tumor and also to the mechanical instability, and radiation will not address those—you want to reestablish stability," Dr. Lane said. "On the other hand, reestablishing stability without controlling the tumor is of no advantage either—that's why we're looking for some sort of combination approach so we can control the tumor as well as regain the stability for the vertebral body."

Dr. Lane added that clinical trials are needed to determine whether putting agents in to protect the bone and/or treat the tumor should be standard practice.

Kyphoplasty Restores Height

Vertebroplasty was developed in France and Spain in the 1980s, and

kyphoplasty in the 1990s. Vertebroplasty is more common performed, originally by neurosurgeons and orthopedists but nowadays by interventional radiology oncologists as well, Dr. Lane noted.

Kyphoplasty's advantage over vertebroplasty is that vertebral augmentation with the balloon tamp partially restores vertebral height, decreases kyphosis, and relieves pain.

"There is no question that vertebroplasty reduces pain about the same as kyphoplasty and increases mobility because of pain relief, but there is no reduction of fracture as with kyphoplasty," he said. "The issue is, how important is it to correct the alignment of the spine?"

He noted that multiple myeloma studies by his group show that kyphoplasty can restore up to 50% of a patient's height, reduce kyphosis by about 50%, and significantly improve pain relief and function (Lane JM, et al: *Clinical Orthopedics and Related Research* 2004;426:49-53)

Complications of kyphoplasty are minimal, he said, but issues of remain-

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ing concern are the timing of kyphoplasty and bisphosphonate-generated bone brittleness.

And so far the technique does not appear to be appropriate for solid tumors.

"Those are troublesome—that has yet to be worked out," Dr. Lane said. "With a liquid tumor, the balloon can displace the tumor and fit into it, whereas a solid tumor would work as a barrier for the balloon."

He said the surgeon could "power past" the solid tumor and get support for the vertebral body, but that would not displace the tumor very well.



Robert H. Carlson

Denis R. Clohisy, MD: "The major determinant of whether to use kyphoplasty or vertebroplasty should be the safety and risk side of one treatment versus the other."

"I suspect some other adjuvant technique will have to be used such as a laser technique to dissolve the tumor and create a cavity," he said.

Always Biopsy

Dr. Lane warned clinicians to never do either procedure without first doing a biopsy.

"One of every 80 people who have had a kyphoplasty or vertebroplasty for osteoporosis had underlying lymphoma," he said.

Even if the diagnosis of cancer has been made, a biopsy before these procedures allows the oncologist to reassess the treatment protocols based on the efficacy of treatment.

The biopsy also may show the opposite—that there is no tumor in the fracture. "Just because your myeloma patient has a fracture does not necessarily mean there is tumor there," he said.

Early on, patients with myeloma will get fractures from the tumor. But once they are in remission for several years and they get a fracture, frequently

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ScriptDoctor

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story of J.D. helping a friend out giving up something of himself, with the story of a patient and his brother. [The partial liver donor] doesn't want his brother to know he's feeling so sick, because that wouldn't be altruistic," Bakken says.

And that human drama, leavened by comedy in this case, is the point of all the steps taken by entertainment TV shows to ensure medical accuracy. When it's done right, then the story rings true.

Stay tuned next time for "HH&S makes a Hollywood House Call."