Novel combined therapy extends life, diminishes pain in brain cancer patients

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Bob Carter, MD, PhD, (left) is UCSD Chief of Neurosurgery and performs this technique for patients at Moores Cancer Center. Santosh Kesari, MD, PhD, (right) who led this study, is chief of neuro-oncology at UC San Diego Moores Cancer Center. Credit: Courtesy of UCSD; Nick Abadilla Photography

Approximately five to ten percent of patients with primary or metastatic cancer suffer from devastating neurological complications such as headaches, seizures, confusion, difficulty swallowing and visual disturbances. These deficits are caused by a life-threatening form of brain invasion from cancer called neoplastic meningitis. Santosh Kesari, MD, PhD, at the University of California, San Diego School of Medicine and colleagues have utilized a novel combined technique to treat cancer patients by bathing the brain in chemotherapy and relieving pressure from spinal fluid build-up (hydrocephalus). The results of this multicenter study are described in *Journal of Neurosurgery*, now

available online.

"What we have developed is a single intervention to treat both neoplastic meningitis and hydrocephalus," said Kesari, chief of neuro-oncology at UC San Diego Moores Cancer Center and associate professor of neurosciences at the UCSD School of Medicine. "Cancer should be fought by every method available, and this is an aggressive option that can dramatically improve function and survival for select patients."

When cancer cells infiltrate the spaces within the brain, the cells prevent the flow and absorption of spinal fluid. This blockage causes increased pressure and fluid accumulation. By inserting an externally operated "off-on" valve along with an Ommaya reservoir – a small plastic device used to carry medicine to fluid in the brain and spinal cord – and shunt, doctors can both deliver chemotherapy directly to the brain's surfaces and drain excess fluids to the abdomen via a thin internal catheter.

"This dual-purpose technique allows for both diversion of excess spinal fluid and treatment of the underlying cancer," said Bob Carter, MD, PhD, UCSD chief of neurosurgery who performs the technique for patients at Moores Cancer Center. "When brain tumor care is coordinated by a multidisciplinary team such as ours, the results can significantly improve quality of life."

Kesari, who performed the original research on this technique at Harvard Medical School and Brigham and Women's Hospital, said that further studies need to be done to better understand and optimize this combined approach. Kesari and Carter are planning larger, prospective clinical studies to further optimize outcomes in metastatic brain cancer patients.

Provided by University of California - San Diego

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