

# NATIONAL REVIEW of MEDICINE

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## PATIENTS & PRACTICE

### *Toronto MDs' off-label DCA use puts patients, research at risk: experts*

A private clinic in Toronto is among the first places in the world to prescribe dichloroacetate (DCA) to cancer patients, ignoring warnings from researchers and the Canadian Cancer Society that DCA's effectiveness and safety are not yet proven.

Medicor Cancer Centres' founders Dr Akbar Khan and his wife Dr Humaira Khan began prescribing the drug in mid-April.

DCA, which has been used for years as a treatment for some rare metabolic disorders including lactic acidosis, was recently shown to shrink human tumours in a laboratory by inducing apoptosis in *Cancer Cells* by reactivating disabled mitochondria. Dr Evangelos Michelakis and colleagues at the Universities of Calgary and Ottawa reported the discovery on January 17 in *Cancer Cell*, setting off a flurry of breathless news reports and a groundswell of interest among patients on the internet.

#### **DCA DISCORD**

Many researchers are furious that the Toronto clinic is offering DCA. Tak Mak, PhD, a University of Toronto researcher who co-authored a review of Dr Michelakis's DCA study in Science's *STKE* journal in April, says DCA can cause serious neurotoxicity — a problem that can be exacerbated by chemotherapy.

Dr Khan defends his decision, saying he's well aware of the potential side effects. "We feel that with very close monitoring, if there were any problems we would be able to pick up on them and stop the DCA," he says in an interview with *NRM*. "I'm pretty confident we're not harming anyone — from what we know about DCA we are confident we're not causing harm."

#### **DESPERATE MEASURES**

Soon after the *Cancer Cell* study appeared, reports emerged that patients were buying DCA online and self-medicating. Many have been sharing their experiences at TheDCAsite.com, a website owned by California biologist Jim Tassano, who also sells the drug on his sister site,

BuyDCA.com. (*NRM* first reported on this in "[Quacks pervert U of A doc's discovery](#)," April 15, 2007, Vol 4, No 7.)

Besides being potentially dangerous to patients, Dr Michelakis has warned that unregulated use of DCA could threaten the prospects of carrying out a clinical trial. The absence of a control group makes any positive data reported online largely meaningless, and reports of illness caused by non-pharmaceutical grade DCA or the drug's sometimes severe adverse effects could scare off potential clinical trial participants, he told *Nature* in March.

"That doesn't concern me," says Dr Khan of Dr Michelakis's disapproval. "He has to understand that by prescribing it we are helping the scientific community and helping patients learn what are the side effects and the effects of it being used on cancer."

#### **EXPERIMENTAL CASES**

Dr Khan's clinic charges advanced-stage cancer patients about \$150 per week for the medication and bills the public Ontario Health Insurance Plan (OHIP) for the patient visits, unless the patient opts to pay for Medicor's private care package. Dr Khan says he makes no profit on DCA therapy.

Neither Dr Khan nor his wife are oncologists. She's a public health epidemiologist who has worked for several government agencies, and he's a family physician who claims 13 years of cancer-care experience, mostly in pain- and symptom-management. It's all perfectly legal — since it's off-label, it's fine with Health Canada, and patients are fully informed of all the risks.

The couple has now treated or are currently treating a total of 15 patients with DCA. Four have shown significant improvements, says Dr Khan — the rest have either died or seen no improvement.

One of those four patients, a 65-year-old man diagnosed with pleural mesothelioma that has metastasized to the abdomen and the lymph nodes, has seen a lymph node tumour shrink from 6.0x4.2cm to 5.5x3.6cm after four days of high-dose — 45mg/kg per day — DCA therapy. The patient, however, has already been put on DCA twice before and both times had to stop treatment due to side effects. The three other patients — suffering from bone, lung and ovarian cancer respectively — have all seen improvements, Dr Khan says.

Dr Khan is now trying to determine whether a combination of vitamin B1 and alpha-lipoic acid will counteract DCA's neurotoxicity. In the meantime, his clinic continues to take new cancer patients interested in DCA.

"It comes down to patients' rights," Dr Humaira Khan told the *Edmonton Journal* last month. It's better to have these patients under a physician's supervision than to leave them to take DCA without any monitoring, she added.