CASE FROM THE CENTER

High Dose Intravenous Vitamin C and Long Time Survival of a Patient With Cancer of Head of the Pancreas

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A 68-year old white male was a self-referral to the Center in December 1993. Two months previously, he was seen at another medical facility for painless jaundice (bilirubin was 14 mg/dL), "black urine," pain in the stomach and a rapid weight loss of 21 pounds. A CT scan and abdominal angiogram suggested a blocked bile duct and a pancreatic mass. An operation was performed and because of it's location, all of the tumor could not be removed. An area of the tumor (4 cm x 2 cm x 4 cm) was removed. The gallbladder, head of the pancreas, distal stomach, and duodenum were also removed and a complete "Whipple" procedure performed. The pathology report showed a grade I adenocarcinoma of the pancreas with metastasis to 1 of 7 regional lymph nodes (T3, Nl, Mo). A month after the operation the patient developed hyperglycemia. He was placed on the ADA diet with blood glucose monitoring twice a day. After a short period, the blood glucose returned to, and remained, normal. Three months prior to the Whipple procedure, he had a transurethral resection for an enlarged prostate which proved to be benign.

After discussing treatment options with an Oncologist, the patient decided not to take conventional chemotherapy and radiation. At the Center, a complete physical, psychological and biochemical examination was done on the patient. He was an alert. pleasant, 68-year old male who weighed 140 pounds and was 70 inches tall. Significant laboratory data included blood DHEA 39.7 ng/dL (normal, 200 to 335), betacarotene 2.4 ug/dL (normal 10 to 85), and vitamins A, C and E in the non-supplementing normal range. Urine vitamin C was 10 mg/dL (our normal is 20 to 40), and the RBC essential fatty acid profile showed low gamma linolenic, palmitoleic fatty acids and a low stearic/oleic ratio. His fructosamine was 313 umol/L (175 to 272 normal) and blood glucose 326 mg/dL. Hair tissue analysis showed calcium, magnesium and sodium to be low.

A blood analysis for G6PD. a BUN, creatinine and urinalysis was done before I.V. vitamin C was started. All were normal. Appropriate supplements were started for those identified as low or sub-optimal by the laboratory results.

The patient initially received a small dose of vitamin C in Ringer's Lactate during a one hour infusion to screen for toxic reactions. The next infusion of 115 g was given in 1000 mL of Ringer's Lactate over a 8 h period. One hour into the infusion, the plasma C level was 3.7 mg/dL and at 5 h was 19 mg/dL. During the fourth 8-h infusion (8 days later), the 1 h plasma C level was 158 mg/dL and 5 h was 185 mg/dL. Both values are well above the concentration required to kill 100% of human pancreatic tumor cells as found in our research laboratory. 1 The low plasma levels of C in this patient during the first infusion compared to the fourth infusion, shows the value of measuring the plasma level to see that adequate levels are achieved during therapy. The patient received 39 of the 8-h infusions in doses ranging from 57.5 to 115 g over a 13-week period, the length of the treatment protocol with high dose I.V. vitamin C.

A CT scan of the abdomen six months after the surgery failed to detect any progression of the tumor. A recurrence of the tumor occurred after the amount and fre-

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quency of I. V. vitamin C was significantly reduced so the patient could travel in his motor-home (family reunions, etc). The patient lived for 12 months after the initial diagnosis of cancer of the head of the pancreas. He received no chemotherapy or radiation treatment and enjoyed a good quality of life until the time of his death.

Altogether, six patients have been infused intravenously with similar doses of vitamin C over 8-h periods with no reported side-effects. In all cases, the patients had either been given no further therapeutic options by their oncologists, had refused conventional treatment or requested I.V. vitamin C in conjunction with standard chemotherapy.

References

1. Riordan, N. H. et al. 1995. *Medical Hypotheses,* (44), pp. 207-213.