Citrus Bioflavonoids in Surgery and Wound Healing

Tissue repair, wound healing and the reversal of the inflammatory process are dependent upon accelerated cellular metabolism.

Increased requirements of vitamin C, citrus bioflavonoids and other nutrients, hormones (corticosteroids), enzymes and other factors are essential. In addition, vitamin C and the citrus bioflavonoids are important as adjuvants to the therapeutic regimen in controlling or reversing the extension of inflammatory processes.

The mechanism of the citrus bioflavonoids in the prevention and reversal of the inflammatory processes may be considered on a multiple basis by:

- Capillary action
  a. Maintenance of integrity
  b. Decreased permeability
- Cellular metabolic processes
  a. Inhibition of hyaluronidase (the spreading factor in tissues)
  b. Potentiation of corticosteroids
  c. Stabilizing effect on the reticulo-endothelial cells of the adrenal gland
  d. Sparking action and synergism with vitamin C
- Direct anti-inflammatory action
- Elevation of plasma corticosteroid level

The prophylactic use of citrus bioflavonoids (300 mg) together with vitamin C (900 mg) and vitamin K (60 mg), in the management of 565 cases subjected to various major and minor surgical operations, minimized the capillary oozing during surgical operations and diminished postoperative bleeding.

A pronounced reduction in the capillary and venous bleeding resulted from the preoperative use of citrus bioflavonoids. The absence of capillary oozing from exposed brain surfaces and cut surface of bone during surgery was noted in 20 of 22 neurosurgical patients treated with citrus bioflavonoids.

Intravenous administration of citrus bioflavonoids (100 mg), ascorbic acid (300 mg) and vitamin K (15 mg) in all neurosurgical cases was given at the time anesthesia was started. In the majority of these patients, three intramuscular injections were given during the twenty-four hours prior to operation. Subsequent to operation, where the possibility of postoperative bleeding was thought to exist, an additional dose was given either intravenously or intramuscularly. All wounds healed with no evidence of infection, hematoma or induration. No toxic side effects nor allergic manifestations were noted as a result of the citrus bioflavonoid-ascorbic acid-vitamin K treatment.

Pre- and postsurgical citrus bioflavonoid treatment of 350 tonsillectomies significantly reduced the need for clamp and tie procedures to control oozing of blood from the cut surfaces. In 35 head and neck surgical procedures, treated with citrus bioflavonoids, the need for sutures or nasal packings was definitely decreased and postoperative swelling receded sooner than expected from previous experience.

The amount of epinephrine required during rhinoplasties, after pretreatment with citrus bioflavonoids, was reduced to 25% of the quantity normally used in similar cases.

The combination of citrus bioflavonoids (100 mg), ascorbic acid (100 mg), adrenochrome semicarbazone (2.5 mg) and a vitamin K analogue (5 mg) is reported to be very valuable in tonsillectomies and adenoid surgery by minimizing capillary bleeding during these surgical procedures.
Citrus bioflavonoid pretreatment of genitourinary surgical cases significantly reduced capillary bleeding and the need for blood transfusions. The prophylactic use of the bioflavonoids and ascorbic acid in treating 900 patients for rhinoplasties resulted in less bleeding during the operation and minimized postoperative edema.

In a series of 106 patients suffering from periodontitis, prophylactic treatment with 600 mg each of citrus bioflavonoids and ascorbic acid, effectively prevented extensive hemorrhage in oral surgery and controlled secondary postextraction hemorrhage.

These reports indicate that citrus bioflavonoids diminished the capillary ooze of cut tissue and postoperative bleeding tendencies. As a result, the need for transfusions is lessened considerably, and the occurrence of wound separation is minimized.

BIBLIOGRAPHY