Sperm cryopreservation in patients with leukemia: Is it worth the effort? J Hallak, PN Kolettis, VS Sekhon, AJ Thomas, Jr., and A Agarwal. Andrology Research and Clinical Laboratories, Department of Urology, The Cleveland Clinic Foundation, Cleveland, OH.

Objectives: Even patients with severely impaired semen quality can potentially establish pregnancy by the intracytoplasmic sperm injection (ICSI) technique. Future reproductive potential in men with leukemia, who are typically young, has become an important issue because of recent advances in cancer treatment. This study assessed the effects of cryopreservation on semen quality in men with leukemia before therapy.

Design: Records of 27 patients with acute or chronic leukemia who banked their sperm were reviewed, and semen characteristics were compared with those of normal donors (n = 39) before and after cryopreservation.

Materials and Methods: After receiving the institutional review board approval, we reviewed records of all 27 patients with leukemia (14 acute and 13 chronic) who came for sperm banking between 1982 and 1997. Semen specimens were collected by masturbation after a minimum of 2 to 3 days' sexual abstinence and allowed to liquefy for 30 minutes. Semen analysis was performed both before cryopreservation and after thawing with a computer assisted semen analyzer (CASA) and sperm counts were verified manually by light microscopy. Semen samples were cryopreserved with TES-T-yolk buffer using the liquid nitrogen vapor freezing technique. Differences between pre-freeze and post-thaw values in normal donors and patients were considered significant at P <0.05.

Results: Percent motility, curvilinear velocity, and total motile sperm count were significantly poorer in leukemia patients compared with donors in pre-freeze and post-thaw specimens (P <0.01); patients had a median post-thaw total motile sperm count of 9.9 X 10⁶ (interquartile range [IQR]: 0.7 to 33.04 X 10⁶) whereas donors had a median count of 59.1 X 10⁶ (IQR: 23.0 to 90.8 X 10⁶). Pre-freeze and post-thaw semen characteristics did not differ between acute and chronic leukemia patients.

Conclusions: Patients with leukemia have poor pre-freeze and post-thaw semen quality compared to normal donors. The post-thaw total motile sperm count in these patients, however, is sufficient for assisted reproductive techniques such as ICSI. We believe that these patients should be offered sperm cryopreservation for possible future fertility.