Two New Ovarian Cancer Biomarkers

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Objectives: We have recently discovered several human kallikrein genes and constructed the first detailed map of the human kallikrein gene locus on chromosome 19q13.4. Our objective was to examine if any members of this gene family and their corresponding proteins, are useful as cancer biomarkers.
Research Methodology: We have developed recombinant proteins, monoclonal and polyclonal antibodies, and highly sensitive, non-competitive immunofluorometric procedures for quantifying two new kallikrein proteins, human kallikrein 6 (hK6; also known as zyme/protease M/neurosin) and human kallikrein 10 (hK10; also known as the normal epithelial cell-specific 1 gene, NES1). We then analyzed a total of 378 serum samples from healthy individuals or patients with various malignancies.
Results: By using a cutoff point of 15 μg/L for hK6, we found that 66% of ovarian cancer patients had elevated values while none of the patients with other malignancies showed any increase. By using a cutoff of 0.8 μg/L for hK10, we found that 78% of patients with ovarian cancer had increased values while patients with other malignancies also showed increases (46% for GI cancer, 30% for lung cancer, 26% for prostate and thyroid cancer, and 12% for patients with testicular cancer). With a cutoff of 1.5 μg/L of hK10, 56% of ovarian cancer patients had elevated values while only about 13% of GI and lung cancer patients had increased values.

When we tested four patients with consecutive samples, we found that hK6 and hK10 levels correlated with disease progression and regression, similarly to CA-125 analysis.
Conclusions: We conclude that hK6 and hK10 represent two novel ovarian cancer biomarkers which should be studied further for their suitability as diagnostic and monitoring tools.