Contribution ID: **98** Type: **not specified**

The role of dedicated single photon detectors in breast diagnosis

Friday, 5 September 2014 10:50 (30 minutes)

On November 2012, a paper was published in the New England Journal of Nuclear Medicine stating the effect of three decades of screening mammography on breast cancer incidence in the U.S. It has demonstrated that introduction of screening mammography in the U.S. has doubled the number of cases of early-stage breast cancer that are detected each year. At the same time, the rate at which women present with late-stage cancer has decreased by 8%, from 102 to 94 cases per 100,000 women. Excluding the transient access incidence associated hormone replacement therapy and adjusting for trends in the incidence of breast cancer among women younger than 40 years of age. They estimated that breast cancer was over diagnosed in 1.3 million women in the past 30 years. According to their estimate in 2008, breast cancer over diagnosed in more than 70,000 women; this accounted for 31% of all breast cancers diagnosed. Subsequently, several papers also demonstrated large numbers of false positive results with screening mammography. In early 1993, we initiated prone scintimammography. The goal was to reduce the number of "unnecessary"breast biopsies that are created with screening mammogram. Since then, we have performed well over 2000 exams with technique using Tc 99m Sestamibi breast imaging. From the very beginning, we realized large field of view cameras that we were using for breast imaging with a large field of view was unable to detect small cancers as well as cancers in larger breasts and those at the medial portion of the breast. Since then there are several dedicated nuclear medicine breast imagers that have been developed, some of which are commercially available. With the use of a dedicated breast imager we have a tool to evaluate the metabolic and biologic aspects of breast cancer rather than anatomic findings. We and others found out that the major obstacle for nuclear medicine technology either single photon or PET imaging is the size of the tumor in the breast. However, with the advent of a dedicated breast imager our intrinsic resolution has significantly improved. Our next step is to improve the imaging technology with the use of hybrids scanner, i.e. combining and co-registration of nuclear medicine images with either digital mammogram or tomosynthisis. This will provide with ideal technology to image anatomic and molecular behavior of breast cancer. The preliminary result of this type of approach is encouraging. We propose, with the preliminary data that is available, to initial a large scale of screening women with a combination of digital mammogram and dedicated molecular breast imager.

Presenter: Prof. KHALKHALI, Iraj (Harbor - UCLA Medical center)

Session Classification: Breast session