140 Harley Street
London W1N 1AH

The Endocrine & Dermatology Centre

Telephone 01 935 2440
Telex 8955552 Endoc G

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OSTEOPOROSIS SCREENING: AN ESSENTIAL PART OF GYNAECOLOGICAL ASSESSMENT

Cervical Cytology and Mammography are recognised screening methods for the early diagnosis of cancer. Osteoporosis is an equally serious problem affecting 1 in 4 menopausal women, with a high morbidity (over 44,000 hip fractures per year; 22,000 permanent invalids per year) and a high mortality (9,000 deaths per year) with a rising incidence in the United Kingdom (1). To detect the condition early we recommend that a woman's first **Bone Density Scan** should be performed at 30 years of age when Peak Bone Mass is achieved. This identifies those women with **low Peak Bone Mass** who would be at future increased risk of Osteoporosis and fracture.

The early introduction of **Bone Builder Exercises** from our **Physiotherapy Studio, Calcium, Vitamin D** from **The Pharmacy** in therapeutic doses and avoidance of adverse factors: alcohol, smoking, caffeine should be advised. Failure to respond on rescanning if associated with failing ovarian function would be an indication for **sex Hormone Replacement Therapy (sHRT).** Confirmation that premenopausal daughters of mothers with postmenopausal Osteoporosis have low Peak Bone Mass provides evidence that a strong familial tendency operates in Osteoporosis (2). **Thus any woman with a family history of fractures or Dowager's Hump should have a Bone Density Scan as a high priority.**

Oestrogen use and breast cancer risk.

In our March 1989 Newsletter (3) we drew attention to the importance of achieving physiological blood levels of oestradiol 17 Beta during sHRT. This was in contrast to those who felt that unphysiologically high levels were an advantage in improving Bone Density and did not have significant longterm side effects. The new evidence which has just been published indicating an increase in breast cancer during oral contraceptive use re-emphasises the importance of our approach. There is probably a link between oestrogen use and breast cancer premenopausally (4) but there is a lack of evidence so far to indicate that this continues after the menopause with the use of sHRT. However this new work is bound to implant in the minds of patients and their doctors further fears about the longterm use of sHRT postmenopausally as well. This confirms the importance we attach to full gynaecological and hormonal assessment before starting longterm sHRT and regular gynaecological and hormonal monitoring while on it to maintain serum oestradiol 17 Beta levels between 150-440pmol/L: **MEDO Therapy** i.e. the Minimum Effective Dose of Oestrogen. If these precautions are taken we feel that the other important advantages in relation to improvement of bone density, skin thickness, vasomotor symptoms, psychological symptoms, pelvic atrophy and the new evidence of cerebrovascular and cardiovascular protection add to the consensus that **Bone Density Screening** and **sHRT** should be discussed with **all peri-, postmenopausal women.**

BONE DENSITY SCAN £175.00. ELIGIBLE FOR BUPA etc.
OSTEOPOROSIS AND MENOPAUSE CLINIC

References:

1. A Report of The Royal College of Physicians (1989) Fractured Neck of Femur, Prevention and Management. Published by The Royal College of Physicians of London.

2. Seeman E, Hopp J L, Bach L A, Cooper M E, Parkinson E, McKay J, Jerums G (1989) Reduced bone mass in daughters of women with osteoporosis. New England Journal of Medicine 320: 554-558.

3. EDC Newsletter: March 1989. sHRT and Osteoporosis: Overdosing on oestrogen?

4. UK National Case-Control Study Group (1989) Oral contraceptive use and breast cancer risk in young women. Lancet 1: 973-982.

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OSTEOPOROSIS
BONE DENSITY SCREENING

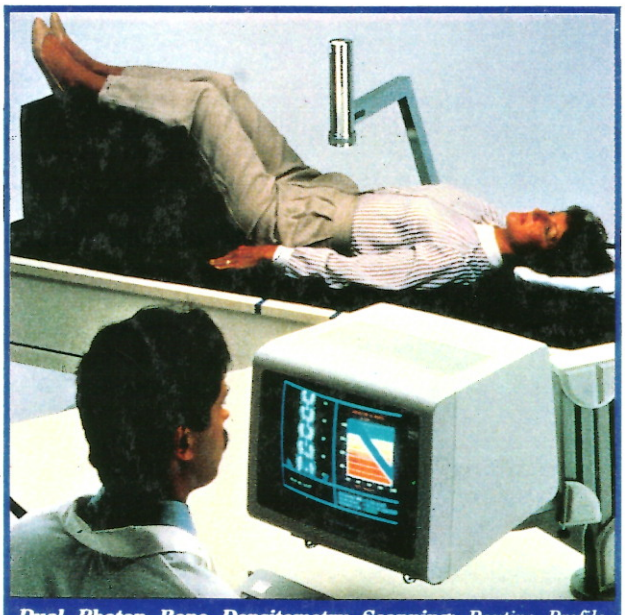
Both Primary and Secondary Osteoporosis are essential concerns of the General Physician. Primary Osteoporosis results from ageing processes and declining sex hormones. Bone loss is particularly exaggerated for 4-5 years following the menopause. Women with low peak bone mass, early menopause, or oophorectomy are particulary at risk.

In 1985 the DHSS recorded 44,000 Hospital Admissions for hip fractures in England and Wales of whom almost 80% were women and 26,000 were over 75 years of age. Of those patients admitted with hip fractures almost 9,000 died while 22,000 became invalids dependent on relatives or the State for their continued existence. Patients with Osteoporosis related fractures permanently occupy 10,000 hospital beds in the United Kingdom. To these figures must be added those patients with Osteoporosis who are not counted in these figures since they were not hospitalised but suffer from fractured vertebrae, back pain, fractures of the ribs sometimes just on coughing, wrist, radius, ulna, tibia, fibula, pelvis and the deformities of kyphosis, scoliosis and lordosis.

The cost to the country of Osteoporosis has been estimated by one leading expert to be in excess of £1 billion per annum with a rise of 6% in the total number of affected patients annually.

The General Physician should consider Osteoporosis in patients receiving longterm Anti-convulsants, following Gastric, Small Bowel Resection or Malabsorption, Malnutrition, in Hyperparathyroidism, Thyrotoxicosis, Anorexia Nervosa, Hypogonadism in men (e.g. Klinefelter's Syndrome), Immobilisation, Chronic Obstructive Lung Disease, Diabetes Mellitus, Amenorrhoea due to any cause including over-exercise, Alcohol Abuse and Cirrhosis of the Liver. **Dual Photon Bone Densitometry Scanning** of patients for Osteoporosis at the time of presentation enables the early institution of therapeutic measures to enhance bone healing and to prevent fracture later and may be part of the metabolic survey of patients receiving topical Vitamin D therapy for Psoriasis.

Osteoporosis is sometimes associated with Rheumatoid Arthritis which by itself may decrease bone mass either through local articular resorption or by inactivity. However a major problem is the use of corticosteroids (e.g. prednisolone) which can produce rapid bone loss in some individuals even with doses as low as 5-10 mg per day. Loss is directly related to the cumulative dose. Postmenopausal women, whose bone mass is already low and growing children, have the highest susceptibility to steroid induced Osteopenia. Non-steroidal anti-inflammatory drugs do not seem to affect bone directly but may interfere with Vitamin D metabolism.



Dual Photon Bone Densitometry Scanning: *Routine Profile includes Right and Left Proximal Femur and Lumbar Spine as in this patient, with immediate computerised analysis and printout available to referring General Physician.*

Immobilisation of bones from Osteoarthritis, trauma, paraplegia or following surgery may lead also to severe Osteoporosis, with continued disability following the immediate trauma.

Corticosteroid induced Osteoporosis is caused by both a direct inhibition of bone formation and indirect stimulation of bone resorption. There is a preferential loss of trabecular bone, especially from the spine. Bone formation is reduced by a depressive effect on osteoblasts, while both 1,25-dihydroxyvitamin D and osteocalcin are depressed by corticosteroids. Bone resorption can result from calcium loss secondary to impaired resorption of calcium by the renal tubules and inhibition of intestinal calcium absorption. This may be a consequence of impaired Vitamin D metabolism and produce mild secondary hyperparathyroidism.

Dual Photon Bone Densitometry Scanning of susceptible osteoporotic fracture sites provides an accurate and precise measurement of Bone Mineral Density (BMD). Changes as little as 2-3% can be detected while 40% or more of bone must be lost before this is evident on X-ray. Such objective assessment of fracture risk allows the collection of patient specific information, particularly for the neck of femur and spine to allow the appropriate decisions to be made concerning their subsequent surgical and medical management.

Osteopenia at fracture sites is the most important risk factor for fracture. BMD accounts for 90% of the variation in bone strength and 80-90% of the attributable risk of fracture. Patients with spinal BMD values below 0.9 g/cm^2 or femur BMD values below 0.6 g/cm^2 are considered osteoporotic.

Dual Photon Bone Densitometry Scanning should be used also to monitor the course of bone disease and the response to therapeutic agents.