To conclude, patients with clinical and biological manifestations suggestive of cryoglobulins constitute a pitfall for clinicians and biologists when standard laboratory investigations remain negative for cryoglobulinaemia. Unusual in vitro properties of cryoglobulins, including dependence upon calcium concentration, should be looked for in such circumstances.

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Computed digital absorptiometry of the hand: screening method of bone loss in postmenopausal women with RA

Dual energy *x* ray absorptiometry (DXA) is the most commonly used method of measuring bone mineral density (BMD); it has been shown to be a good predictor of the future risk of fracture.[1] Unfortunately, the generalised use of DXA is limited as it is expensive and time consuming, is not portable, and is available only in specialised clinics.

Computed digital absorptiometry (CDA) of the hand is a new bone densitometry technique, designed to assess the BMD of the middle phalanx of the third finger using a direct, automated measurement of *x* ray attenuation.[2] This technique is similar to radiographic absorptiometry but provides immediate results; in current radiographic absorptiometry, radiographs are sent to an off site processing centre and the results are received a few days later. CDA is cheap and quick. Its precision and accuracy seem to be acceptable, but its ability to discriminate between patients with osteoporosis and normal subjects, to predict risk of future fracture, and to monitor the response to therapeutic intervention has not been established.

Rheumatoid arthritis (RA) is a risk factor for osteoporosis.[3] The available data suggest that there is an increased risk of hip fracture in patients with RA, especially when they are treated with glucocorticoids.[4] DXA is the preferred technique for assessing the presence of bone loss in these patients. However, the prevalence of RA in the general population is high, and it is, therefore necessary to use DXA to investigate only those patients at high risk of osteoporosis. Criteria to decide who should be evaluated are currently not available. Recently, in this journal,[5] Lems and Dijkmans presented a proposal from rheumatologists in Amsterdam based on clinical risk factors.

We have undertaken a study to evaluate whether CDA might be a useful screening technique for identifying the patients with RA who should be examined by DXA. Over a period of three months all postmenopausal women with RA, evaluated in the rheumatology outpatient clinic, who fulfilled the inclusion criteria were asked to participate. The inclusion criteria were (*a*) duration of RA longer than one year, (*b*) duration of postmenopausal period longer than one year, and (*c*) no current treatment with bone thinning agents.

Forty five patients fulfilled the inclusion criteria and consent was obtained from 40 of these. In these patients BMD was assessed by DXA and CDA on the same day. One further patient was not be included in the study as she had a severe ulnar deviation that did not allow CDA to be used.

For DXA, BMD (g/cm^2) of the lumbar spine and upper femur was assessed using a dual energy *x* ray system (Hologic QDR 1000, Hologic Inc, Waltham, Mass); we considered the mean value of the L2–4 vertebrae and the value of the femoral neck. For CDA, BMD (g/cm^2) of the middle phalanx of the third finger of the non-dominant hand was assessed using a dual energy *x* ray system (AccuDEXA, Schick Technologies, Long Island, NY). The *x* ray attenuation data were automatically processed and represented as a grey scale image. To assess the in vivo short term precision, 10 serial measurements (with interim repositioning) were performed in seven healthy volunteers. The in vivo precision of AccuDEXA, expressed as a coefficient of variation, was 1.16% (0.74 to 1.56). Data were cross referenced with the T score. According to WHO criteria,[1] osteoporosis is defined as a T score below −2.5 .

A Spearman correlation test and linear regression analysis were used to test the relation between the variables; $p<0.05$ was considered significant. A 2×2 table was used to evaluate the positive and negative predictive value of CDA for the diagnosis of osteoporosis established by DXA.

Table 1 lists the clinical characteristics of the patients and the mean BMD values obtained.

BMD at the lumbar spine and at the non-dominant hand correlated significantly ($r = 0.51$, $p<0.01$). Similarly, BMD at the femoral neck and at the non-dominant hand were significantly correlated ($r = 0.51$, $p<0.01$).

DXA showed that 13 patients had osteoporosis and CDA that 16 patients had the disease in at least one of the evaluated zones. The positive predictive value of CDA for the diagnosis of osteoporosis was 56%. The negative predictive value for the diagnosis of osteoporosis was 83%.

The correlations found between BMD at the non-dominant hand and BMD at the lumbar spine and femoral neck were moderate. A negative predictive value was considered acceptable. Our results suggest that CDA could be a screening method used to decide which patients with RA should be investigated for osteoporosis. Further investigations are needed to confirm our findings.

Table 1 Clinical characteristics of the patients with RA and BMD values obtained (n=39). Values are expressed as mean (SD)

Age (y)	61.2 (8.3)
Duration of postmenopausal period (y)	13.3 (7.5)
Duration of rheumatoid arthritis (y)	9.7 (6.4)
Rheumatoid factor positive (n)	30
Erosive RA (n)	16
Treatment with low dose glucocorticoids (n)	32
BMD* at the lumbar spine (g/cm^2)	0.840 (0.150)
BMD at the femoral neck (g/cm^2)	0.660 (0.110)
BMD at the middle phalanx of the third finger (g/cm^2)	0.390 (0.090)

*BMD = bone mineral density.

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