secondary osteoporosis was detected. Serum vitamin D concentration was <30 ng/ml in 5 patients, including 2 with concentration <10 ng/ml.

Conclusions: Our study reveals that odontoid fractures mainly occur in elderly osteoporotic patients after a low energy impact. Although WHO osteoporosis definition excludes cervical fractures, odontoid fracture may be considered as an osteoporotic fracture. Further studies are required to confirm these results.

References:
[1] Watanabe M, et al. Analysis of predisposing factors in elderly people with type II odontoid fracture. Spine J. 2014 Jun 1; 14(6):861–6.

Disclosure of Interest: None declared

FRI0579   INFLUENCE OF ORAL PREDNISOLONE ON EFFECT OF DENOSUMAB ON OSTEOPOROSIS IN PATIENTS WITH JAPANESE RHEUMATOID ARTHRITIS; 24 MONTHS OF FOLLOW-UP ~A MULTICENTER REGISTRY STUDY~

Y. Kanayama [1], Y. Hirano [2], N. Takahashi [3], S. Asai [3], N. Ishiguro [3], T. Kojima [3] on behalf of TBCR-BONE study group. [1]*Orthopedic Surgery and Rheumatology, Toyota Kosei Hospital, Toyota;* [2]*Rheumatology, Toyohashi Municipal Hospital, Toyohashi;* [3]*Orthopedic Surgery, Nagoya University Graduate School of Medicine, Nagoya, Japan*

Background: Denosumab (DMB) is a fully human monoclonal antibody to the RANKL that blocks its binding RANK, inhibiting the development and activity of osteoclasts, decreasing bone resorption, increasing bone density and reducing fracture risk. Osteoporosis (OP) is more frequent in patients with rheumatoid arthritis (RA) than in the general population due to active systemic inflammation as well as the use of glucocorticoid and immobility. However efficacy of DMB is not clear in patirnts with glucocorticoid- induced OP in RA. Therefore we investigated the influence of oral prednisolone on effect of DMB in patients with Japanese RA from initiation to 24 months at this time.

Objectives: This prospective study investigated the efficacy of DMB for 24 months on glucocorticoid- induced OP in RA patients.

Methods: Patients with a diagnosis of RA according to the 2010 ACR/EULAR criteria who had been prescribed DMB from Tsurumai Biologics Communication Registry (TBCR)-BONE between October 2013 and October 2015 were enrolled. The final study cohort of 63 patients received continuous DMB therapy more than 24 months. The DMB dose was 60mg at once every 6 months. In all cases native or activated vitamin D has been used. We reviewed the results for 24 months about the increase and decrease of bone mineral density (BMD) of lumbar spine (LS) and total hip (TH) by DEXA and bone turnover markers, intact n-terminal propeptide type I procollagen (PINP) and tartrate-resistant acid phopshatate form 5b (TRACP-5b).

Results: In the patients receiving oral prednisolone group (n=23, GC+) and not receiving group (n=40, GC-), the number of female was each 21 (91%) and 39 (98%) cases (p=0.548). The mean age was 69.8±7.0 and 71.0±7.3 years old (p=0.622); disease duration was 16.0±8.9 and 15.7±12.6 years (p=0.592); the body mass index was 20.7±3.5 and 19.7±3.0 (p=0.335) and the FRAX was 34.2±19.1 and 24.6±13.9 (p=0.040). Clinical findings related to RA and OP at baseline were as follows; CRP 1.2±1.4 and 0.5±1.0 mg/dl (p=0.009); DAS-CRP 3.16±1.17 and 2.50±1.27 (p=0.025); m-HAQ 1.24±0.90 and 0.82±0.82 (p=0.065); P1NP 60.1±38.6 and 56.9±33.5 μg/l (p=0.711); TRACP-5b 513±257 and 505±202 mU/dL (p=0.689); LS-BMD 0.87±0.18 and 0.80±0.14 g/cm^2 (p=0.074) and TH-BMD 0.60±0.11 and 0.59±0.08 g/cm^2 (p=0.457). The rate of decreased P1NP from baseline to 6, 12, 18 and 24 months were each -25.6% vs -41.6% (p=0.129) at 6 month, -8.0% vs -42.6% (p=0.031) at 12 month, -19.5% vs -27.5% (p=0.235) at 18 month and -13.8% vs -33.8% (p=0.134) at 24 month and TRAC-5b were -26.5% vs -38.7% (p=0.710) at 6 month, -22.0% vs -35.1% (p=0.229) at 12 month, -25.2% vs -28.1% (p=0.792) at 18 month and -20.6% vs -27.3% (p=0.663) at 24 month in the GS+ vs GS- group. The rate of increased LS-BMD from baseline to 6, 12, 18 and 24 months were each 4.1% vs 4.6% (p=0.671) at 6 month, 5.3% vs 7.0% (p=0.361) at 12 month, 8.1% vs 8.1% (p=0.438) at 18 month and 10.0% vs 7.7% (p=0.104) at 24 month and TH-BMD were 3.3% vs 2.7% (p=0.690) at 6 month, 1.4% vs 3.8% (p=0.804) at 12 month, 6.4% vs 4.0% (p=0.259) at 18 month and 5.7% vs 4.3% (p=0.945) at 24 month in the GS+ vs GS- group (Fig.1,2).
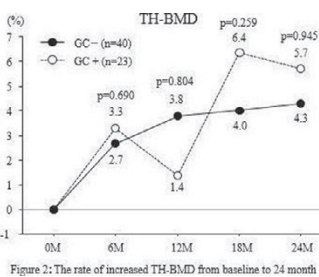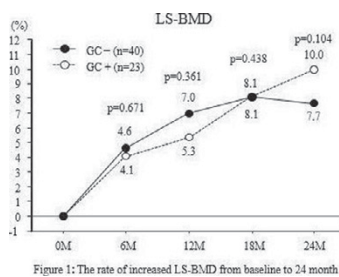

Figure 1: The rate of increased LS-BMD from baseline to 24 month

Figure 2: The rate of increased TH-BMD from baseline to 24 month

Conclusions: DMB was effective in OP of RA patients. Oral prednisolone use did not influence the efficacy of DMB for 24 months.

FRI0580   PREDICT SARCOPENIA BY SONOELASTOGRAPHY OF QUADRICEPS MUSCLE IN OSTEOPOROTIC PATIENTS

Y.-C. Chen, C.-H. Ko. *Rheumatology, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan, Province of China*

Background: Reduced muscle mass had associated with high mortality. So it is urgent for simple techniques to early detection sarcopenia. Our objective was to examine the validity of sonoelastography to predict sarcopenia in osteoporotic patients.

Objectives: To evaluate the association of sonoelastography and dual-energy X-ray absorptiometry in patients with sarcopenia and osteoporosis.

Methods: We conducted an observational study in Kaohsiung Chang Gang Memorial Hospital. Sarcopenia was determined using a dual-energy X-ray absorptiometry. Osteoporosis was defined through estimated bone mass (BM). Sonoelastography was performed over mid thigh over quadriceps muscle. We measure hardness and elastography ratio of quadriceps over subcutaneous fat tissue. ROC analysis was used to find best cut-off point.

Results: A total 47 (23 sarcopenia, 24 non-sarcopenia) osteoporotic patients were enrolled. The mean age was 71.04±9.64 years, and most patients (88.9%) were women. Sonoelastography showed sarcopenia patients had more soft than non-sarcopenia patients, furthermore the elastography ratio of quadriceps over subcutaneous tissue was lower than non-sarcopenia patients. When the cut points determined by receiver operating characteristic (ROC) curve analysis were applied, The best cut-point of hardness was 42.5 (sensitivity, 0.969; 1-specificity, 0.066), while the best cut-point of quadriceps over subcutaneous tissue was 70.5% (sensitivity, 1.00; 1-specificity, 0.079).

Characteristics of study patients

Variables	Sarcopenia (n=23)	Non-sarcopenia (n=24)	*P*-value
Age (years)	71.04 ±9.64	70.82±8.624	0.316
Body mass index (kg/m^2)	23.80±3.45	23.83±4.56	0.977
Gender (Female %)	22 (75.9%)	78 (84.8%)	0.624
EX2/1	0.37±0.15	1.36±0.57	**<0.001**
Hard%	15.44±13.15	76.70±20.12	**<0.001**
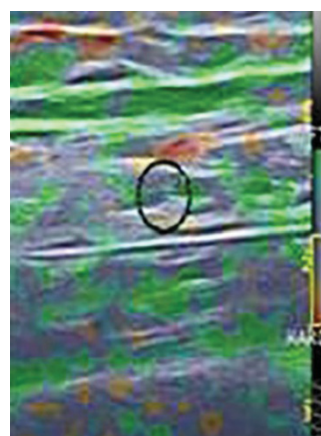
Conclusions: Sonoelastography was easily applicable in patients with sarcopenia and osteoporosis. Using hardness content and elastography ratio of quadriceps over subcutaneous ratio render more information of muscle character. Early detection of sarcopenia with sonoelastography in patients with osteoporosis afford future trend of preventive medicine in geriatric patients.

References:
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