A Survey of Osteoporosis in Thailand

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This survey of osteoporotic opinion was conducted to150 Thai physicians in every part of the country with 10 questionnaires. The details of the questions concentrated on the osteoporosis in the aspects of diagnosis, management, methods of assessment, common medicine for treatment. The most responder specialty was Orthopedist (79%), others were Gynecologist (3%), Rheumatologist (5%), Internist (5%), the others (7%) respectively. The diagnosis of osteoporosis used Dual-energy X-ray absorptiometry (DXA), (81%) in the case of this equipment as well as other methods (16%) are available. The per cent of other methods are X-ray, clinical symptoms, microdensitometry, QUS, biochemical bone markers and others: 30,23,13,5,3 and 6 respectively. About twenty-five percent of physicians took responses to 21-100 cases per month while two per cent of responders had more than 100 cases per month. The most common three ranking kinds of criteria were used for initiating medication for the treatment of osteoporosis that had low bone mineral density, signs of vertebral fracture, and menopause which they considered as the importance of prophylactic medication for patients. The continuation of medication depends on the following factors: experience of serious side effect (62%), affordable expense (53%) and stable bone mass (52%). The desirable features of anti-osteoporosis agents are stopped fracture, increasing BMD, cost effectiveness, side effect, stopped bone resorption, pain relieve and drug compliance respectively. Calcium is most commonly prescribed on condition that premenopausal and postmenopausal women have without fracture or with fracture: patients are elderly and treated with the prolonged steroid application. Bisphosphonates are widely used in case of fracture in every group. Alfacalcidol, vitamin D analog is the third prescription in the above conditions. Bisphosphonate,Calcium and Alfacacidol are the common kinds of combination under the above conditions. In addition, these kinds of drugs are commonly used for continuation after the remission therapy.

Keywords: Absorptiometry, Photon, Biological markers, Bone density, Osteoporosis, Ultrasonography

At present, the diagnosis of osteoporosis depends on bone densitometer[1,2] showing decrease bone mass. However, some bone diseases manifest low bone mass as osteoporosis such as osteomalacia, some stages of renal osteodystrophy and hyperparathyroid. The accurate diagnosis must depend on the physical examination, family history for differentiating the condition of low bone mass. In Thailand, the surveys of osteoporosis were studied in many aspects of osteoporosis: the incidence of hip fracture[3,4], the cost effectiveness of this disease[5] but the survey of this style does not performed.

Material and Method

The questionnaire was distributed to the physicians who had an experience in clinical practice for at least one year and they agreed to fill in the answers. The 150 papers were returned.

The details of questions are arranged by ten items:

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1. What is your specialty?

2. Do you have DXA for diagnosis of osteoporosis? Yes. Which site do you measure? No. How do you diagnose osteoporosis? Microdensitometry, QUS, X-Ray, Clinical symptoms, Biochemical bone markers and other (specify).

3. Do you have any patients with an investigation of osteoporosis in your practice? If 'Yes,' how many patients with osteoporosis do you have? Select the followings: 1-5 patients/month, 6-20 patients/month, 21-100 patients/month and more than 100 patients per month.

4. What kind of criteria is used for initiating medication for treatment of osteoporosis? Select the following answers (multiple replies allowed): Low bone mass density, with vertebral fracture, High bone markers, Menopause, Patient's age, Treated with glucocorticosteroid, With family history of osteoporosis, Suffering from disease induced osteoporosis, Life style including high risk of fracture and others (specify).

5. Do you agree on the importance of prophylactic medication for patients with high risks of osteoporosis? If 'Yes' what kinds of criteria are applied for initiating medication in order to prevent osteoporosis? Please select: Low mineral density, with vertebral fracture, Menopause, Patient's age, Treated with glucocorticoid, With family history of osteoporosis, Suffering from disease induced osteoporosis, Life style including high risks of fracture and others (specify).

6. When do the patients tend to quit medication? Until no further fractures, until getting stable BMD, until experience of serious side effect, Depending on patient's favorite, Depending on patient's economic status and others (specify).

7. What features do you find important in an anti-osteoporosis agent? (Select): Increasing BMD, Stop fracture, Stop bone resorption, Control pain, Side effects, Cost effectiveness, Convenience to take and others (specify).

8. Do you select the medication best suited for each patient's situation? If 'Yes,' please select the below table (Fig. 1).

9. Do you support a combination therapy with different drugs? If 'Yes,' What kind of combination is best under the following conditions? Please select the below table (Fig. 2).

10. Do you support a continuous medication from an early stage to an advanced stage after the remission therapy? If 'Yes,' what kind of management is the best under the following osteoporosis stages? Please answer the following table (Fig. 3).

Results

Question 1. What is your specialty?

The specialty of responders is Orthopedist (79%), Rhematologist (5%), Gynecologist (3%), Internist (5%) and others (8%).

Question 2. Do you have a DXA for your diagnosis of osteoporosis?

Answer 'Yes': Most of responders (81%) have DXA for assessment and most common sites for

Fig. 1 Shows the format of the eighth question for selection of medicine according to the patient's status. BP: bisphosphonate, SERM: selective estrogen receptor modulator, ES: estrogen, CT: calcitonin, Ca: calcium

Fig. 2 Format of the ninth question for combination therapy of medicine which is suitable for the patient's status. BP: bisphosphonate, SERM: selective estrogen receptor modulator, ES: estrogen, CT: calcitonin, Ca: calcium

Fig. 3 The pattern of the tenth question for the selection of medicine that suits the patient's status. BP: bisphosphonate, SERM: selective estrogen receptor modulator, ES: estrogen, CT: calcitonin, Ca: calcium

measurement are Lumbar spine (93%), Femora (98%), Forearm (31%) and Heel (12%).

Answer 'No' the physicians have different tools for diagnosis. The roentgen film is the most popular use (30%). The other methods are clinical symptoms (23%), Microdensitometry (13%), QUS (5%), Biochemical bone markers (3%) and other methods (6%).

Question 3. How many patients with osteoporosis do you have?

The patients number 6-20 cases per month are taken care by responders (51%). The two per cent of a large number of cases are in a group of more than 100 patients.

Question 4. What kinds of criteria are used for initiating medication for treatment of osteoporosis? (Multiple answers allowed).

Answer: Low bone mineral density is accepted by most physicians (91%) and the second rank is the signs of vertebral fracture (88%) and the others showed in the table (Table 1).

Question 5. Do you agree on the importance of prophylactic medication for patients with high risks of osteoporosis?

Most responders agree with the prophylactic medication (92%), small numbers (7%) refuse and no comment (1%).

The reasons for consideration of prophylactics are different among the groups of agreement (Fig. 4).

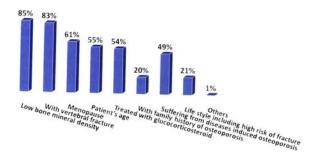**Question 6.** When do the patients tend to quit medication? (Multiple answers allowed) (Table 2).

Fig. 4 The results of responders' agreement on the question of prophylactic medication in a high risk group

Question 7. What features do you find important in anti- osteoporosis agents? (Multiple answers allowed) (Table 3).

Question 8. Do you select the medication best suited each patient's situation? (Table 4).

Question 9. Do you support a combination therapy with different drugs? If you agree, please specify (multiple answers allowed) (Table 5).

Table 1. The result of question 4 shows per cent of conditions which stimulate the physicians for starting medication

Low BMD	91
Vert. fr.	88
Menopause	58
Age	49
On steroid	43
Family history	19
Suffered by disease	38
Life style	20
Bone markers	13
Other	3

Table 2. For the conditions that quit medication, the condition of serious side effect is accepted by most responders (62%)

Conditions	Percent
Until stop further fractures	22
Until getting stable BMD	52
Until experience of side effect	62
Depending on patient's favorite	34
Depending on economic status	53
Others	5

Table 3. Results of question 7. The main factors for the users

Conditions	Percent
Increased BMD	71
Stop fracture	71
Stop bone resorption	56
Control pain	54
Side effect	63
Cost effective	69
Compliance	54
Others	1

Table 4. Evaluation (Question 8) of the medicine type under different circumstances in per cent

Status	BP	SERM	ES	Alfcal	Calcitri	PVD	CT	Ca	No med	Other
PrM-Fr	6	1	2	10	8	10	0	64	70	2
PrM+fr	37	1	5	25	16	9	16	112	11	7
PM-Fr	33	24	20	33	21	21	3	108	18	4
PM+Fr	92	31	20	36	30	20	39	115	0	7
EM-Fr	33	1	0	40	21	9	7	95	23	7
EM+Fr	88	2	0	46	31	9	24	117	1	6
St+3m	53	6	2	36	20	11	6	104	12	2

PrM-Fr: premenopausal women without fracture, PrM+Fr: premenopausl women with fracture, PM-Fr: postmenopausal women without fracture, PM+Fr: postmenopausal women with fracture, EM-Fr: elderly men without fracture, EM+Fr: elderly men with fracture, St+3m: Understeroid more than 3 months
BP: bisphophonate, SERM: selective estrogen receptor moderator, ES: estrogen, Alfacal: alfacalcidol, Calcitri: calcitriol, PVD: plain vitamin D, CT: calcitonin, Ca: calcium

Table 5. (Question 9)

Status	Bp	SERM	ES	Alfcal	Calcitri	PVD	CT	Ca	No med	Other
PrM-Fr	6	3	5	14	13	13	1	74	68	0
PrM+fr	50	4	6	33	21	24	22	128	14	6
PM-Fr	51	26	19	41	31	19	4	121	17	4
PM+Fr	118	37	19	49	41	27	37	133	1	8
EM-Fr	40	4	0	40	28	15	10	114	29	0
EM+Fr	101	8	0	58	41	15	38	135	5	13
PMwhr	91	21	21	49	40	26	14	132	5	3

PrM-Fr: premenopausal women without fracture, PrM+Fr: premenopausl women with fracture, PM-Fr: postmenopausal women without fracture, PM+Fr: postmenopausal women with fracture, EM-Fr: elderly men without fracture, EM+Fr: elderly men with fracture, PMwhr: postmenopausal women with high risks of exasperation of osteoporosis
BP: bisphophonate, SERM: selective estrogen receptor moderator, ES: estrogen, Alfacal: alfacalcidol, Calcitri: calcitriol, PVD: plain vitamin D, CT: calcitonin, Ca: calcium

Table 6. Evaluation of supporting a continuous medication (question 10)

Status	Bp	SERM	ES	Alfcal	Calcitri	PVD	CT	Ca	No med	Other
PrM-Fr	10	3	3	13	11	12	0	63	41	1
PrM+fr	41	3	5	20	17	18	13	94	8	3
PM6-Fr	71	29	18	40	29	16	17	106	1	3
PM7+Fr	67	24	13	42	29	13	13	106	1	4

PrM-Fr: premenopausal women without fracture, PrM+Fr: premenopausl women with fracture, PM-Fr: postmenopausal women within 6 years without fracture, PM+Fr: Postmenopausal women (more than 6 years) with fracture
BP: bisphophonate, SERM: selective estrogen receptor moderator, ES: estrogen, Alfacal: alfacalcidol, Calcitri: calcitriol, PVD: plain vitamin D, CT: calcitonin, Ca: calcium

Fifty two per cent responders agree but twenty-one physicians do not agree while twenty-seven responders do not answer.

The kind of combination is best for the following conditions.

Question 10. Do you support a continuous medication from an early stage to an advanced stage after the remission therapy? (Table 6).

Discussion

There are many kinds of medication for osteoporosis but they can be divided into two categories:

1. Bone formation agents: Calcium, vitamin D and analogues, vitamin K2, PTH.

2. Antiresorptive agents: Bisphosphonates, Calcitonin, SERM, Estrogen.

Application of these drugs at the proper time and to appropriate situation is the goal of treatment. The antiresorptive agents should be used when the bone has high resorption for stopped bone loss. In this survey, the responders used fracture, menopause as a marker for treatment even in premenopausal women with fracture or without fracture, these groups should be carefully taken care of. In the study, the finding was that premenopausal and postmenopausal women were at high risk of bone resorption. They were about 98% who were checked by biochemical bone markers. Bone markers are very sensitive to bone change which can show the dynamic change of bone. The duration of treatment should be three to twelve months for avoiding of bone suppression.

Bisphosphonates are strong antiresorptive agents; they should be used in short period. The common side effects are Flu-like symptom, irritable bowel and very rare cases for oral bisphosphonates, *e.g.* jaw necrosis, cancer of oesophagus.

Calcitonin is an antiresorptive agent with analgesic property about 30% of calcitonin user are non-responses and some cases show an escape phenomenon. The elderly has a trend of decreasing sodium, potassium magnesium in blood that probably induce coma.

Estrogen is an antiresorptive agent which is suitable for intolerable menopausal syndrome. This agent needs to be used carefully because it may induce neoplasm of the breast.

SERM is a mild antiresorptive agent it can be used through a prolonged period for optimizing the bone resorption. Non-response may be found in this agent. The venous engorgement should be omitted. The application in osteoporosis male is not supported. Vitamin D is a formative agent for osteocalcin synthesis, suppression of PTH secretion, enhancing calcium absorption at intestine and kidneys and controlling bone remodeling. The natural form has to be changed into an active form at liver and kidneys. The popular analogue of vitamin D is alfacalcidol. This form has an advantage over vitamin D (native form) for decreasing the incidence of hypercalcemia. Alfacalcidol is a common application in osteoporosis.

This survey will give lesions: Diagnosis of osteoporosis should not use only bone mass measurement, whereas the low bone mass may be occurred by osteomalacia, rickets, renal osteodystrophy, hyperparathyroidism. History taking and plain roentgen will support.

Bone markers can verify the status of bone and monitor the drug therapy.

Treatment is still controversy but selection of proper drug in proper time will be effective. Initiating is recognized by most responders by using of low bone mass, vertebral fracture, bone markers, menopause, patient's age and high risks of osteoporosis as criteria. In addition, medication combination of drugs should be avoided in the same group of agents. This study found that 52% of responders agreed twenty-one responders refused to use the combination and twenty-seven responders showed no comment. Toward the quit medication opinion, the responders agreed to quit when experiencing serious side effects (62%), depending on patient's economic status (53%), getting stable BMD (52%), patients' agreement to stop (34%) and when the further fractures do not occur (22%) and others (5%).

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การสำรวจความเห็นแพทย์ไทยในการใช้ยารักษาโรคกระดูกพรุน

ณรงค์ บุณยะรัตเวช, ศุภศิลป์ สุนทราภา, ทวี ทรงพัฒนาศิลป์, ธนินนิตย์ ลีรพันธ์

ผลสำรวจความเห็นแพทย์ไทย ในประเทศ 150 คนที่มีประสบการณ์การรักษาโรคกระดูกพรุนอย่างน้อย 1 ปี โดยการแจกกระดาษที่มีคำถาม 10 ข้อ การสำรวจนี้ทำพร้อมกับโครงการใหญ่ ชื่อ ISOPA (International Survey of Osteoporosis in Asia) ที่ประกอบด้วย 10 ประเทศได้แก่ จีน อินโดนีเซีย เกาหลี มาเลเซีย พม่า ปากีสถาน สิงคโปร์ ไต้หวัน ไทย และเวียดนาม ซึ่งได้เสร็จแล้วและได้แสดงในงาน IBMS 2009 สำหรับประเทศไทย จึงนำมาตีพิมพ์ได้ แต่ละประเทศตามข้อตกลง

คำถามประกอบด้วย ท่านเป็นแพทย์สาขาใด, ท่านใช้เครื่องวัดมวลกระดูกในการวินิจฉัยโรคหรือไม่ ท่านมีผู้ป่วย ในเรื่องกระดูกพรุนมากน้อยต่อเดือน มีข้อบ่งชี้อะไรที่ทำให้เริ่มรักษา มีความเห็นอย่างไรที่รักษาเพื่อป้องกันและมีข้อบ่งชี้ อะไร เมื่อไรจะเลิกรักษา ท่านเห็นว่าอะไรเป็นปัจจัยสำคัญที่ต้องรักษา ท่านเลือกยาต่อไปนี้ อย่างไรในสภาพ premeno-pausal women ที่มีกระดูกหักและไม่หัก และ หญิงที่หมดประจำเดือนแล้ว ที่มีกระดูกหักหรือไม่หัก นอกจากนี้ในคำถาม ข้อนี้ ขอความเห็นว่าจะใช้ยาใดในกลุ่มผู้ป่วยที่ใช้ สตีรอยด์และกลุ่มผู้สูงอายุที่มี หรือไม่มีกระดูกหัก คำถามข้อที่ 9 ท่านเห็นด้วยในการผสมยาหลายขนานในการรักษาและถ้าในกลุ่ม สตรีที่มีปัจจัยเสี่ยงสูง และในกลุ่มชายสูงอายุที่มี หรือ ไม่มีกระดูกหัก ท่านใช้ยาใดที่รักษาต่อเนื่องในกลุ่ม สตรีก่อนหมดประจำเดือน และสตรีหมดประจำเดือนในหกปีแรก และหลังหมดประจำเดือนกว่าหกปี ข้อมูลในรายละเอียดในรายงาน