Aspirin Therapy as Primary Prevention in Hypertensive Patients at Srinagarind Hospital

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Aspirin is now a useful therapy for both primary and secondary prevention for cardiovascular events especially in diabetic patients. Hypertension is also one of the major atherosclerotic risk factors. The authors studied the rate of aspirin use as primary prevention in hypertensive cases at Srinagarind Hospital, Khon Kaen University. There were 164 of 231 hypertensive patients who were aged over 50 years old and met the criteria for aspirin therapy with 2003 ESH's guideline. Only 18.9% (31 of 164 cases) were prescribed aspirin. The most common dose of aspirin was 60 mg/day which was lower than the suggested dose. Within one- year follow up, there was no serious side effects of the aspirin such as upper gastrointestinal bleeding.

Keywords: *Aspirin, Primary prevention, Hypertension*

J Med Assoc Thai 2005; 88 (12): 1797-801
Full text. e-Journal: *http://www.medassocthai.org/journal*

Cardiovascular diseases are major public health problems worldwide. These burdens are an important part of the enormous cost of the disease and permanent worst quality of these patients' life. Hypertension is one of the most common cause of atherosclerotic events especially stroke. Worldwide prevalence estimates for hypertension may be as much as 1 billion individuals, and approximately 7.1 million deaths per year may be attributable to hypertension[1]. The control of isolated systolic hypertension reduces total mortality, cardiovascular mortality, stroke, and heart failure events[2]. Furthermore, many studies[3-6] also showed the benefit of using aspirin to reduce the prevalence of cardiovascular complication due to hypertension. The 2003 ESH/ESC Guideline[7] also recommended using antiplatelet in the high or very high cardiovascular risk hypertensive patients those over 50 years of age.

The authors would like to study the rate of the appropriate use of aspirin as primary prevention in hypertensive patients at outpatient department, Srinagarind Hospital. Moreover, side effects of aspirin use would be reviewed.

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Material and Method

The researchers conducted a cross-sectional descriptive study to evaluate the rate of aspirin treatment. The authors reviewed the charts of hypertensive patients who were continuously treated for at least one year at the outpatient department, Srinagarind Hospital from October 2003 to October 2004. All cases were aged more than 50 years old and had never experienced any atherosclerotic events; ischemic heart disease, stroke, or peripheral artery disease. Patients were excluded if he or she had a history of aspirin allergy. There were 960 cases fit with our criteria. We selected cases by block of four technique. Each OPD card was carefully reviewed such as demographic data, blood pressure, atherosclerotic risk factors, and using aspirin and their received antihypertensive drugs. The 2003 ESH guideline indicated high risk hypertensive patients as one of these three items; two or more major cardiovascular risk factors (high risk), any one of target

organ damage (TOD), or defined as diabetes mellitus. The major cardiovascular risk factors[7] are male age more than 55 years old, female age more than 65 years old, smoking, dyslipidemia (total cholesterol > 250 mg/dL, or LDL > 155 mg/dL, or HDL-cholesterol less than 40 mg/dL in men or less than 48 mg/dL in women), family history of premature cardiovascular death (age less than 55 years old in men or less than 65 years old in women), abdominal obesity (more than 102 cm in men or more than 88 cm in women), or high sensitive C-reactive protein level more than 1 mg/dL. The target organ damage are left ventricular hypertrophy by physical examination, chest X ray, electrocardiography, or echocardiography; arterial wall thickening or atherosclerosis plaque by ultrasound; slightly increase serum creatinine (more than 1.3 mg/dL in men or more than 1.2 mg/dL in women); microalbuminuria (30-300 mg/day) or macroalbuminuria. Hypertensive patients who were more than 50 years old and compatible with one of these criteria were appropriated for aspirin therapy. In the cases treated with aspirin, side effects related with aspirin were carefully observed from the medical records. The statistical analyses were performed with the use of the SPSS (version 11.0) to calculate the frequency, percentage, and mean.

Results

There were 240 hypertensive patients were enrolled, 9 cases were excluded because of loss to follow up. All of them (231 cases) were more than 50 years old and continuously treated at the outpatient department, Srinagarind Hospital; 89 cases (36.8%) were male. The mean age was 64.4 years old. There were only 11 patients who had a record of their height. Seventy-nine patients (34.2%) had diabetes mellitus; 23 cases (29.1%) had blood pressure less than 130/80 mmHg. On the other hand, 106 cases (69.7%) of 152 cases, who did not have diabetes mellitus or chronic kidney disease, achieved the aim of blood pressure control (less than 140/90 mmHg). The three most common antihypertensive drugs were hydrochlorothiazide (106 cases, 45.9%), enalapril (69 cases, 29.9%), and atenolol (50 cases, 21.6%). Most patients (152 cases, 65.8%) took only one antihypertensive drug while the number of patients who took two, three, and four antihypertensive agents were 70 (30.3%), 8 (3.5%), and 1 (0.4%) cases, respectively. There were 34 record data (14.7%) about smoking habit (21 cases were non-smokers). On

Table 1. The missing data on medical record (N = 231)

Variables	Number (Percentage)
Family history of sudden death	229 (99.1%)
Microalbuminuria level	222 (96.1%)
Height	220 (95.2%)
Smoking habit	197 (85.3%)
Fasting plasma glucose	127 (55.0%)
EKG	92 (39.8%)
Lipid profile	84 (36.4%)
Serum creatinine level	63 (27.3%)

Table 2. Proportion of case and 95%CI of each variable

Variables	Proportion of case (Percentage)	95%CI
DM	79/231 (34.2%)	28.10-40.75
DM & HT - controllable	23/79 (29.1%)	19.71-40.58
HT - control	106/152 (69.7%)	61.68-76.78
Take one drug	152/231 (65.8%)	59.25-71.82
Should take aspirin	164/231 (71.0%)	64.61-76.67
3 risk factors	15/164 (9.1%)	5.39-14.90
2 risk factors		
TOD/DM	32/164 (19.5%)	13.91-26.58
TOD/high risk	25/164 (15.2%)	10.29-21.88
DM/high risk	6/164 (3.7%)	1.50-8.15
One risk factor		
TOD	41/164 (25.0%)	18.72-32.47
DM	26/164 (15.9%)	10.80-22.56
High risk	19/164 (11.6%)	7.30-17.74
Take aspirin	31/164 (18.9%)	13.39-25.91
Appropriated dose	6/31 (19.4%)	8.12-38.06

the medical record, the two most common missing data were family history of sudden death, and microalbuminuria level (Table 1).

According to the ESH's recommendation, there were 164 of 231 patients (71%, 95%CI = 64.61, 76.67) who should receive aspirin therapy as primary prevention. Fifteen patients were high risk, DM, and had TOD, 32 patients were DM and had TOD, 25 cases were high risk and had TOD, 6 cases were high risk and DM, 41 cases had only TOD, 26 cases were only DM, and 19 cases were only high risk (Fig. 1). Only 31 cases (18.9%) were treated with aspirin; 19 of 79 cases (24.1%) in DM group, 20 of 113 cases (17.7%) in the TOD group, and 10 of 65 cases (15.4%) in the high risk group. Aspirin was used in 9 of 26 patients (34.6%) in only DM, 9 of 41 patients (22.0%) in only TOD, and 3 of 19 patients (15.8%) in only high risk. The doses of aspirin therapy were 60 mg/day (25 cases, 80.6%), 120 mg/day (2 cases, 6.5%), and 300 mg/day (4 cases, 12.9%). Within one-year follow up, there was no serious side effect of aspirin such as upper gastrointestinal bleeding. Table 2 demonstrates the proportion and 95% confident interval of each variable.

Discussion

Hypertension is one of the major risk factors for atherothrombosis especially stroke[8]. At present, the incidence of hypertension is continuously increasing[8,9]. Complications such as stroke are significantly reduced if blood pressure is controllable[8]. Aspirin therapy as primary prevention is successfully introduced in high-risk diabetic patients[10]. But in hypertensive cases, it is not a strong recommendation but may be a beneficial therapy. The 2003 ESH/ESC guideline recommended aspirin therapy in hypertensive patients who are over fifty years old with one or more major cardiovascular risk factors, Diabetes Mellitus, or TOD. For hypertensive patients, the blood pressure should be controlled before starting aspirin[11,12]. If not, bleeding especially intracerebral or gastrointestinal hemorrhage may occur.

The limitation of the authors' review was the incomplete record of each patient. Not only important histories such as a family history of sudden death or smoking habit but also necessary laboratories such as microalbuminuria or fasting plasma glucose were overlooked. There was also a small number of records on height, important value for calculating body mass index. These may be because of unintentional record or limitation of time in outpatient care. Physicians should take more time in considering individual's atherosclerotic risk factors in hypertensive patients. This plays an important role in aspirin therapy as primary prevention.

More than half the patients took only one antihypertensive agent, mostly hydrochlorothiazide. The overall blood pressure control rate was 55.8% (129 of 231 cases). Non-diabetic patients achieved the aim of blood pressure control more than the diabetic group. The reasons why uncontrolled blood pressure in dia-

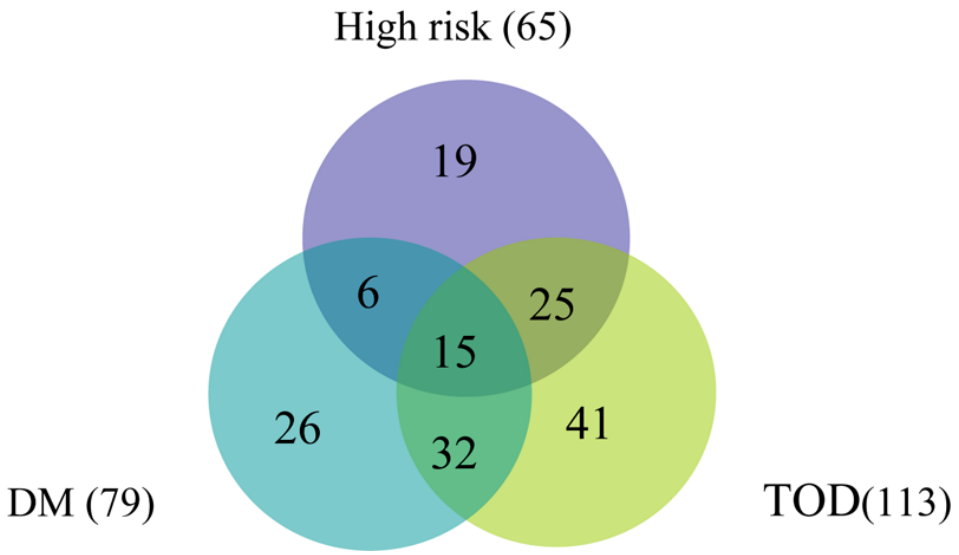

Fig. 1 The number of cases in each group

betic patients were the goal of blood pressure in the diabetic group which is lower and diabetic patients usually have other multiple risk factors especially metabolic syndrome[13]. These may imply that doctors can start to treat hypertension with monotherapy especially in non-diabetic patients. Seventy percent of the presented patients needed to be treated with aspirin. The percentage of patients who were suitable for aspirin therapy may be higher than this because of lack of some important data on medical record. There were about one-third of the hypertensive patients over 50 years of age who had diabetes mellitus (95%CI = 28.18, 40.75). Physicians prescribed aspirin in only 18.9%, mainly in diabetic patients because there were many trials that showed benefit of primary prevention of aspirin in DM[3-6]. In addition, most physicians also believed that DM is the major atherosclerotic risk factor. On the other hand, it was difficult to evaluate TOD or count the difficult criteria of atherosclerotic risk factors. Physicians' confidence in aspirin's efficacy may effect the prescription of aspirin therapy. According to the proper dose of aspirin, the appropriate dose of aspirin (primary prevention) in hypertensive patients has not definitely been suggested. According to some guidelines, the recommended dose of aspirin therapy is 75-162 mg/day for both primary[11] and secondary prevention[10]. There were only twenty percent of cases were treated properly. Regarding side effect of aspirin, uncontrolled hypertension and concomitant use of NSAIDs or anticoagulant induce major organ bleeding. Higher dose of aspirin, more than 162 mg/day, may also increase risk of hemorrhage[11]. There is no beneficial evidence of enteric coated or buffered aspirin on bleeding tendency. Estimated gastrointestinal bleeding events are 2 to 4 per 1,000 middle-aged persons taken aspirin for 5 years. It is reasonable that there was no evidence of major organ bleeding in our review.

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การใช้ยาแอสไพรินเพื่อป้องกันภาวะแทรกซ้อนทางหัวใจและหลอดเลือดของผู้ป่วยความดันโลหิตสูงในโรงพยาบาลศรีนครินทร์

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ในปัจจุบันแอสไพรินเป็นยาที่มีประโยชน์ในการป้องกันโรคทางหัวใจและหลอดเลือดทั้งแบบปฐมภูมิและทุติยภูมิโดยเฉพาะในผู้ป่วยเบาหวาน การศึกษานี้ได้ศึกษาอัตราการใช้ยาแอสไพรินเพื่อป้องกันโรคหัวใจและหลอดเลือดชนิดปฐมภูมิในผู้ป่วยโรคความดันโลหิตสูงที่โรงพยาบาลศรีนครินทร์ มหาวิทยาลัยขอนแก่น จากการศึกษาพบว่ามีผู้ป่วยโรคความดันโลหิตสูงจำนวน 231 คนที่มีอายุมากกว่า 50 ปีและในจำนวนนี้มีผู้ที่ควรได้รับยาแอสไพรินจำนวน 164 ราย ตามคำแนะนำของสมาคมโรคความดันโลหิตสูงแห่งยุโรป ทั้งนี้พบว่ามีผู้ป่วยเพียงร้อยละ 18.9 (31 จาก 164 ราย) ที่ได้รับยาแอสไพริน ขนาดยาที่ใช้บ่อยที่สุดคือ 60 มก.ต่อวันซึ่งต่ำกว่าขนาดที่ควรได้รับ จากการติดตามผู้ป่วยเป็นระยะเวลา 1 ปี ไม่พบว่ามีผลข้างเคียงจากการใช้ยาแอสไพรินที่รุนแรงเช่น ภาวะเลือดออกในทางเดินอาหารเป็นต้น