AN ASSESSMENT ON KAP IMPACT ON ELDERLY PATIENTS WITH SPINAL STENOSIS AT NAKHON NAYOK, ONGKHARAK, THAILAND

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ABSTRACT

Spinal stenosis may also be present in asymptomatic patients. This review focuses on the clinical management of degenerative lumbar spinal stenosis, including aetiology and natural history, symptoms and physical outcomes, diagnostic testing and treatment options. Pelvic spinal stenosis is commonly used to describe patients with symptoms related to anatomical reduction of pelvic spine size. Prevalence of spinal stenosis is unknown. This study aimed to explore the level of knowledge and attitudes of patients with spinal stenosis and their pain management practices. Modern society, prevalence of spinal stenosis remains high in different communities especially in elderly patients. 224 subjects were selected by using simple random sampling from Nakhon Nayok, Thailand. The instruments composed of three parts: Demographic Data, Knowledge and Attitudes of spinal stenosis and Pain Management Questionnaire, and patients Regarding Pain Management caring behaviour Questionnaire. There is lacuna on knowledge and attitudes of spinal stenosis and pain management practices. The findings indicated that spinal stenosis patients had negative attitudes, low level of knowledge and pain management. Whereas, the level of exercise practice were moderate. Therefore, it is necessary to improve the patient’s knowledge and attitudes on spinal stenosis and their pain management practices in the study area. After applying KAP, most of the subjects showed a significant change on pain management.

Key words: Pain Management, Stenosis, Knowledge and Attitudes, Practice.
Introduction

Indeed, severe anatomical spinal stenosis may also be present in asymptomatic patients. This review focuses on the clinical management of degenerative LSS (Lumbar Spinal Stenosis), including aetiology and natural history, symptoms and physical outcomes, diagnostic testing and treatment options. Pelvic spinal stenosis is commonly used to describe patients with symptoms related to anatomical reduction of pelvic spine size. The challenge for this anatomically based definition is that when it is necessary to diagnose LS, it is not enough to determine the severity of symptoms and functional impairment, which can lead to patient treatment. Degenerative spinal stenosis, can occur with other conditions, including degenerative spondylolisthesis or degenerative scoliosis. Although many studies of degenerative LSS have included individuals with these conditions, they are beyond the scope of this review.

Back pain, low back pain is a common problem encountered in the working and elderly population. The first clinical description of LSS is attributed to Verbiest in 1954, [1] although earlier descriptions are available. [2] Fifty years later, there are still no widely accepted diagnostic or taxonomic criteria for the diagnosis of LSS, and consequently studies use widely different eligibility criteria that limit the generalization of reported results. [3,4] and is the most common cause of spinal surgery. Although LSS is a growing concern in the aging population, few studies have examined how prevalence or incidence changes [5, 6]. Spinal stenosis is usually classified primarily as a result of congenital abnormalities or a disorder of postpartum development, [7] or secondary (acquired stenosis) degenerative changes, or the consequences of a local infection, injury, or surgery.

The focus of this review is on the most common cause, the slow progressive degeneration process, which is most prevalent at the three lower lumbar levels [8]. The natural history of spinal stenosis is not properly understood, with half of the patients being medically stable, with a quarter deteriorating or improving [9]. For any individual patient, the course is exceptional with flares over time and consistent periods [10]. Decreased LSS anatomically consists of a central canal, lateral recess, foramina or a combination of this sites. Central canal stenosis can be caused by secondary degeneration of the anteroposterior, transverse or combined diameter to lose disc height with or without bulge of the intervertebral disc and hypertrophy of the facial joints and ligamentum flexion. Fibrosis is the leading cause of lipidum flexion hypertrophy and is caused by the accumulation of mechanical stress, especially along with the dorsal component of the ligamentum flexion.

Transforming growth factor (TGF) released by endothelial cells induces fibrosis, especially in the early stages of hypertrophy [11]. The same processes, such as loss of disc height, hypertrophy of the facial joint (with or without spondylolisthesis) and / or vertebral endoplasticosteophytosis, can also cause lateral groin stenosis. Foraminal stenosis may be anteroposterior, caused by an increase in structures that narrow the disc space and anterior to the facial joint capsule, and / or vertebrae vertically from posterior osteophytes to vertebral, anteriorly bulging aneurysms [12]. Foraminal stenosis more frequently involves the L5 nerve root, as the L5-S1 foramen is the one with the smaller foramen/root area ratio [12]. In addition
to these slowly progressive degenerative anatomical changes, lumbar spine stenosis has an important dynamic component.

The available space in the Central Canal decreases with loading and extension and increases with axial distraction and bending [13]. Bending of the same dynamics foramen causes a 12% increase and a 15% decrease in the surface area [14] the most important physio-pathological hypothesis for degenerative LSS is the concept of two-level stenosis, which was first proposed by Porter [15] based on animal studies [16] and clinical observations. Signs and symptoms come from vascular compromise to the vessels that supply the cauda equina (central stenosis) or from stress on the nerve root complex (lateral stenosis) through degenerative changes.

Experimentally, it has been shown that moderate contraction-induced pressure on the cauda nerve roots disrupts their nutrition, and further experimental studies have supported this hypothesis [17, 18]. The clinical effect of these changes is related to the rate at which compression develops [16, 19]. There are several other hypothesized effects of nerve root contraction: 1) Direct obstruction of blood flow to the cauda equina; [20]. An intraosseous and cerebrospinal pressure change affected by posture; [21] and 3) a direct neuronal compression of the nerve roots [22]. When Takahashi et al reported increased epidural pressure during extension 15 years ago, especially when standing, the effect of postural changes on the central spinal canal was assessed [23]. Similar results have been shown for forensic pressure [24]. In addition, this study suggests that in patients with imaging showing central canal stenosis confined to a level without foraminal stenosis, the foraminal pressure is still elevated, and the two-level hypothesis may still apply to these patients. All of these patients recovered from their leg symptoms after central decompression without foraminotomy [24].

Several studies have revealed that the prevalence of back pain remains high in common population. According to the United Nations estimates, between 2010 and 2040, 8 to 14 folds of population aged 65 or older will grow from 16 to 25 percent in developing regions. [25]. Prevalence studies suggest that up to 50% of the population currently have 65% low back pain [26]. These tend to emphasize the need for the physical therapists to manage the aging spinal cord. The impact of the lower back pain in the older population is very high and has functional limits [[27, 28, 29], mental health conditions and depression in the elderly [29, 30], and deficits in balancing with associated increased fall risk [31].

The elderly population should gain significant knowledge on how to change behavioural attitudes and pain management practices on spinal stenosis. Unfortunately, there is a lack of knowledge on spinal stenosis in the general population of the study area. Pain management plays an important role in improper assessment and pain management.

Sometimes, health professionals and the target population often underestimate the severity of pain. Worldwide, many patients are treated with analgesics. Low levels of knowledge and attitudes threaten the need for KAP in the study area.

This may be due to lack of educational background, attitudes and general pain management practices. It is therefore necessary to deploy knowledge on pain management techniques. Therefore, it is worth studying to examine the knowledge and attitudes of the elderly
population and their pain management practice. Finding the investigation provides basic information for future improvement on pain management in the study area.

**Methodology**

A 5-point scale (Likert-type) attitude questionnaire was constructed; a primary pilot study was conducted and tested [32]. The data was collected from 224 local respondents Nakhon Nayok, Thailand.

**Conceptual framework**

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Deploy knowledge on pain management techniques for the elderly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>Pain management practices.</td>
</tr>
<tr>
<td>Practice</td>
<td>• To introduce proper ways of behaving concerning the pain management</td>
</tr>
</tbody>
</table>

**Results and Discussion**

The subjects mean age of the samples was 61 years (SD = 4.06), ranges 49 to 71. Most of them subjects were female (82%), males (18%), Buddhists (98%), others (2%) 90.8 % of the subjects had primary education level, high school (4.2%) and 2% with bachelor degree. Three-fifths of the elderly population had previous pain experience.

Among the elderly population 68.91% had previous low back pain, 12.09% moderate pain and 19.0% had severe pain. Some of them attended for the pin management program (38.98%), 61.02% of the subjects never attended for the pain management program.

Table 1 Distribution of subjects based on the knowledge and attitudes towards pain management.

<table>
<thead>
<tr>
<th>Level of knowledge</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low (score 1-3)</td>
<td>152</td>
<td>67.86</td>
</tr>
<tr>
<td>Moderate (score 4-6)</td>
<td>50</td>
<td>22.32</td>
</tr>
<tr>
<td>High (score 7-10)</td>
<td>22</td>
<td>09.82</td>
</tr>
<tr>
<td></td>
<td>224</td>
<td>100</td>
</tr>
</tbody>
</table>

The above table elucidates the distribution of respondents based on the knowledge and attitudes towards pain management. Here specific parameter defined as very low, moderate and high.
Majority of the respondents expressed their perceptions and behavioural attitudes towards pain management as follows very low (67.86%), moderate 17.86% and high at 14.28% respectively (fig. 1).

Table 2 Distribution of subjects based on the practice towards pain management

<table>
<thead>
<tr>
<th>Practice frequencies</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily once</td>
<td>36</td>
<td>16.07</td>
</tr>
<tr>
<td>Daily twice</td>
<td>48</td>
<td>21.43</td>
</tr>
<tr>
<td>Weekly</td>
<td>58</td>
<td>25.89</td>
</tr>
<tr>
<td>Monthly</td>
<td>32</td>
<td>14.29</td>
</tr>
<tr>
<td>If I have free time</td>
<td>50</td>
<td>22.32</td>
</tr>
<tr>
<td></td>
<td>224</td>
<td>100</td>
</tr>
</tbody>
</table>

Fig: 2. Distribution of subjects based on the practice towards pain management.

The above table explores the distribution of respondents based on the practice towards pain management. Here specific parameter defined as daily once, daily twice, weekly monthly and if I have free time. Most of the respondents practicing pain management systematically weekly.
once (25.89%), daily twice 21.43%, If I have time (22.32%), daily once (16.07%), monthly once (14.29%). It shows the deficit of systematic practice in spinal stenosis pain management (fig 2).

Table 3 Distribution of subjects based on the post-test of KAP application on practice towards pain management.

<table>
<thead>
<tr>
<th>Practice frequencies</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily once</td>
<td>62</td>
<td>27.68</td>
</tr>
<tr>
<td>Daily twice</td>
<td>128</td>
<td>57.14</td>
</tr>
<tr>
<td>Weekly</td>
<td>20</td>
<td>8.93</td>
</tr>
<tr>
<td>Monthly</td>
<td>12</td>
<td>5.36</td>
</tr>
<tr>
<td>If I have free time</td>
<td>2</td>
<td>0.89</td>
</tr>
</tbody>
</table>

Table 4. Distribution of subjects based on the pre and post test of KAP application on practice towards pain management.

<table>
<thead>
<tr>
<th>Practice frequencies</th>
<th>Pre Test of KAP Percent (%)</th>
<th>Post Test of KAP Percent (%)</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily once</td>
<td>16.07</td>
<td>27.68</td>
<td>P&lt;0.0001</td>
</tr>
<tr>
<td>Daily twice</td>
<td>21.43</td>
<td>57.14</td>
<td>P&lt;0.0001</td>
</tr>
<tr>
<td>Weekly</td>
<td>25.89</td>
<td>8.93</td>
<td>P&lt;0.0001</td>
</tr>
<tr>
<td>Monthly</td>
<td>14.29</td>
<td>5.36</td>
<td>P&lt;0.0001</td>
</tr>
<tr>
<td>If I have free time</td>
<td>22.32</td>
<td>0.89</td>
<td>P&lt;0.0001</td>
</tr>
</tbody>
</table>
The above table elucidates the distribution of respondents based on KAP application on practice towards pain management. Here specific parameter defined as daily once, daily twice, and weekly monthly and if I have free time. From the results, 57.14%, of the respondents practicing pain management systematically daily twice, daily once (27.68%), weekly once (8.93%), monthly once (5.36%), and If I have time (0.89%) respectively. It shows the enormous improvement on systematic practice in spinal stenosis pain management. Most of the respondents significantly responded towards the application of KAP on spinal stenosis pain relief program (Table 3, 4, Fig 3, 4).

A comprehensive rehabilitation program of manual therapy, stretching and strengthening exercises for the pelvic spine and hip area is indicated for those with LS [33, 34, and 35]. The importance of endurance exercises to prevent the harmful consequences of inactivity and deconditioning is also emphasized. However, some randomized studies have assessed physical therapy in the LSS. In one study, Whitman et al. Perceived recovery (but not on pain or performance) as a 1 year intervention with a progressive bodyweight treadmill walking program compared to manual physical therapy, exercises that improve strength, mobility and coordination and a program that combines pelvic flexion exercise and regular treadmill walking [36].

Another study found no differences between the inclusion of a treadmill with body weight support or cycling in addition to a program that combines shock wave diathermy, traction and home exercise [37]. Recently, koc et al. [38] published a small controlled study of patients randomly evaluated into 3 groups and after 6 months (29 analyzed). All patients received diclofenac and training to stretch twice a day and strengthen home exercises. In addition, one group received inpatient physical therapy (ultrasound, hot packs and TENS) for 2 weeks and another group received epidural steroid injections. The authors report that both physical therapy and epidural injection were effective, but no statistical difference was found at 6 months compared with those who received only medication and training (control group). The only significant difference in the epidural injection group was greater improvement in pain and function over 2 weeks compared to controls.
A coordinated study of 145 patients estimated a 4-week intensive, inpatient, multimodal program (ultrasound, infrared heating, active therapy, and subcutaneous salmon calcitonin) [39]. At the end of the program, 91% were classified as pain-free and gait efficiency improved by 89%. In a small uncontrolled trial, [40] bracing can reduce pain and increase walking distance as measured on a treadmill.

**Limitations of the Study**

Study was executed through questionnaire-based survey could generalized some of the aspects and respondents may change their attitudes after the survey. Majority of the respondents are females, conducted at study area. Hence, this could limit the study up to some extent. Study has been made to minimize problem by oral interview with respondents. Thus, further study recommended initiating with complications in application of KAP on spinal stenosis pain management.

**Conclusion**

The finding of this study evidenced that elderly population of the study area were had very low level of knowledge and attitudes in spinal stenosis pain management and had moderate level of practices to reduce or manage the spinal stenosis pain. Further, a significant positive response was received from the subjects upon post sessions of KAP on spinal stenosis pain management.

**Recommendations**

Lack of pain reducing or pain management program may contribute to the very low level of knowledge and attitudes of elderly population in the study area. Therefore, the public health officials need to initiate training programs on back pain and spinal stenosis pain management at targeted population. Although, subjects mentioned about the pain management practices were moderate or negligible. Need to educate and concentrate on behavioural acts of the subjects. Public health care administrators can use the findings of this study to request to policy makers for allocating budgets for training the elderly population at the study area with reference to spinal stenosis pain management in order to enhance the quality of life of the population. A repeated study could be initiated with more male population, urban and rural population.

**References**