Improving Skills and Knowledge in Early Detection of Hyperuricemia in PKK and Posyandu Cadres, Banjarsari Turi Sleman

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Abstract. High uric acid levels will cause an increase in uric acid crystals that are shaped like needles, especially in the joints which will cause pain. Gout generally affects more men than women. In women, it will increase after menopause due to decreased function of the estrogen. The prevalence of hyperuricemia in Indonesia ranks second after osteoarthritis. Gout is not known with certainty and varies quite a bit from one region to another. Hamlet Banjarsari Wonokerto Turi Sleman is one of the hamlets with a high number of elderly people. The daily activities of most farmers are farming snake fruit and vegetables, and some have tilapia ponds. The independence of the elderly in this hamlet is very good so that the elderly is required to always stay healthy. The health check-up activity is a routine monthly activity for the Elderly Integrated Service Post (Posyandu Lansia). Meanwhile, Posyandu lansia officers of Dusun Banjarsari play a role to summon participants and food providers. Not many PKK cadres and some Posyandu lansia workers have the skills to check blood uric acid. This service aims to increase the knowledge and skills of early detection of hyperuricemia for Family Welfare Movement (PKK) cadres and posyandu administrators in Banjarsari Turi village, Sleman. The results of this activity showed an increase in the participants' knowledge at 2.27%, Posyandu cadres made use of the grant items for routine inspection activities in Banjarsari community. The conclusion of this community service activities was it was welcomed by the participants. The counselling was able to increase participants' knowledge about hyperuricemia.

Keywords: early detection, hyperuricemia, posyandu

1 Introduction

Hyperuricemia is a condition in which there is an increase in serum uric acid levels above normal [1,2,3,4]. In most epidemiological studies, it is referred to as hyperuricemia if the serum uric acid level in adults is more than 7.0 mg/dl and more than 6.0 mg/dl in women [5].

Prolonged hyperuricemia can damage joints, soft tissue and kidneys [6]. Hyperuricemia may also not show clinical symptoms / asymptomatic. Two thirds of hyperuricemia show no clinical symptoms. Hyperuricemia results from increased production of uric acid due to a high-purine diet or decreased excretion due to excessive breakdown of nucleic acids or often a combination of both. While gout is a disease that is often found, it is a heterogeneous group

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of diseases as a result of deposition of monosodium urate crystals in tissues due to metabolic disorders in the form of hyperuricemia. Clinical manifestations of urate deposition include gouty arthritis, accumulation of crystals in tissue that destroy bone (tophus), urate stones, and gouty nephropathy [7,8,9]. An epidemiological survey conducted in Situbondo in collaboration with WHO-COPCORD on 4,683 samples aged between 15-45 years found that the prevalence of hyperuricemia was 24.3% in men and 11.7% in women. Overall, the prevalence of both sexes was 17.6%. This disease can be grouped into a form of primary gout which generally occurs (90% of cases) and the cause is not clearly known, but is thought to be due to abnormalities in metabolic processes in the body, and what is certain is it is related to obesity, hypertension, dyslipidaemia, and diabetes mellitus [10]. Gout is generally experienced by men aged over 30 years. Meanwhile, secondary gout (10% of cases) is experienced by women after menopause due to hormonal disturbances.

High uric acid level is also one of the etiologies of hypertension [11,12]. This is reinforced by two recent studies conducting meta-analysis studies which concluded that hyperuricemia is closely related to gout, coronary heart disease, hypertension, stroke, and metabolic syndrome.

Another study conducted a meta-analysis study with a total of 55,607 respondents. The obtained results showed that every increase in uric acid levels of 1 mg/dL is a risk factor for hypertension by 13%. Another study using a cross-sectional method with a total sample of 60 people showed there was a significant relationship between hyperuricemia and hypertension (p=0.000) where hyperuricemia patients had a 16 times greater risk of suffering from hypertension than patients with normal uric acid levels. Furthermore, there was no relationship between obesity and type 2 diabetes mellitus (DM) and hypertension. There was also a positive correlation between systolic and diastolic blood pressure and uric acid levels. The systolic blood pressure had a moderate correlation strength (r=0.619) while diastolic blood pressure had a weak correlation strength (r=0.460) [13].

High uric acid levels will cause an increase in uric acid crystals that are shaped like needles, especially in the joints which will cause pain. Gout generally affects more men than women. In women, it will increase after menopause due to a decrease in the function of the estrogen. In Indonesia, it is estimated to happen in 1.6-13.6/100,000 people. This prevalence increases with increasing age [14]. It should also be noted that in Indonesia hyperuricemia is suffered at an earlier age compared to western countries and 32% of hyperuricemia attacks occur at the age of under 34 years. The prevalence of hyperuricemia in Indonesia ranks second after osteoarthritis. Gout is not known with certainty and varies quite a bit from one region to another [15].

Hamlet Banjarsari Wonokerto Turi Sleman is one of the hamlets with a high number of elderly people. The daily activities of most farmers are farming sneak fruit and vegetables, and some have tilapia ponds. The independence of the elderly in this hamlet is very good so that the elderly is required to always stay healthy. Meanwhile, the elderly is vulnerable to degenerative diseases including hypertension. Meanwhile, hypertension is exacerbated by rising blood uric acid levels. Therefore, it is important to carry out health check-ups as an effort to detect the presence of a disease with symptoms of hyperuricemia early. The health check-ups activity is a routine monthly activity for the Elderly Integrated Service Post (Posyandu Lansia). Meanwhile, Posyandu lansia officers of Dusun Banjarsari play a role in the post to summon participants and food providers. Not many people have the skill in checking blood uric acid. Likewise, it was clarified by Pak Dukuh's statement that Posyandu administrators and Family Welfare Movement (PKK) cadres had never received training and served as tutors on early detection of hyperuricemia.
Based on the situation analysis agreed with the partners, the partners' problems can be summarized as follows:
1. PKK cadres have never received counselling about hyperuricemia
2. PKK cadres have not received training in early detection of hyperuricemia skills
3. There are still Posyandu cadres who have not received training in skills for early detection of hyperuricemia.

2 Methodology

This activity was carried out in collaboration with partners which was realized by signing a collaboration in community service activities. This activity was carried out with a series of activities using the lecture method and practice/demonstration. The series of activities were as follows:
1. Conducting health education/counselling about hyperuricemia
2. Practicing how to measure uric acid blood levels
3. Conducting health check-ups for participants

The evaluation of the implementation of activities was done with pretest and posttest to measure participants' increased knowledge regarding early detection of hyperuricemia.

Fig. 1. The flow of community service activities

3 Results and Discussion

Socialization activities were carried out for the implementation of counselling and training in order to obtain an agreement on the day, location date and preparation of infrastructure facilities as well as materials.

3.1. Health education about the prevention of hyperuricemia

Counselling activities begin with giving pretest to the participants. As shown in figure 1, the pre post test results are as follows:

Fig. 2. The results of participants’ pretest and posttest about hyperuricemia.
The results of the participants' pretest and posttest were varied. Some increased or even decreased, but the average showed an increase. The participants’ knowledge was relatively very good because the pretest average was around 80 with a deviation of 22, thus with counselling, it increased their knowledge to an average of 82 with a deviation of 14 as presented in table 1.

Table 1. Mean of participants’ pretest and posttest

<table>
<thead>
<tr>
<th></th>
<th>pretest</th>
<th>posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>80,27778</td>
<td>82,5</td>
</tr>
<tr>
<td>sd</td>
<td>22,98896</td>
<td>14,8083</td>
</tr>
</tbody>
</table>

Based on the average of pretest and posttest knowledge, it can be calculated that the increase in knowledge after counselling was 2.27%.

3.2 Health check-ups practice

In practice, health check-ups such as height and weight, blood pressure, blood sugar levels and uric acid levels were carried out by PKK and Posyandu cadres who were still learning but were accompanied by trained cadres. The activities were shown in the following figure.

![Fig. 3. Examination of height, weight, uric acid and blood sugar levels](image)

The description of the participants' health examination data is presented in table 2. There were two participants with high uric acid levels (7.7 and 7.5 mg%). They complained that they felt pain in their joint. They also had high blood pressure. This situation in line with the etiology of hypertension that could be caused by hyperuricemia [11,12]. High Cholesterol is also a risk factor of hypertension [10], as found in participant with cholesterol of 230mg%, and blood pressure of 246mg%.

Note: LP : waist circumference
BP : Blood pressure
BS : Blood Sugar
AU: Blood Uric Acid

There were around 40 participants who attended but only 16 people checked their health with the data presented in table 2. Even though there were quite a number of participants who attended the counselling, the awareness to get tested was still low (only 16 people) which means 40% of the participants. People were still afraid to find out the real condition of their health because they would be sad and afraid if they found out that they were not healthy even though this inspection was free.
Table 2. The results of participants’ health check-ups

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Age (Years)</th>
<th>sex</th>
<th>Height (Cm)</th>
<th>Weight (Kg)</th>
<th>LP(cm)</th>
<th>BP(mmHg)</th>
<th>Chol (mg)</th>
<th>BS (mg)</th>
<th>AU(mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sds</td>
<td>56</td>
<td>P</td>
<td>156</td>
<td>73</td>
<td>95</td>
<td>-</td>
<td>268</td>
<td>-</td>
<td>7,7</td>
</tr>
<tr>
<td>2</td>
<td>Syt</td>
<td>55</td>
<td>L</td>
<td>171</td>
<td>85</td>
<td>102</td>
<td>136/75</td>
<td>-</td>
<td>-</td>
<td>5,8</td>
</tr>
<tr>
<td>3</td>
<td>Ny wgn</td>
<td>77</td>
<td>P</td>
<td>157</td>
<td>43</td>
<td>95</td>
<td>170/93</td>
<td>-</td>
<td>-</td>
<td>7,5</td>
</tr>
<tr>
<td>4</td>
<td>KSM R</td>
<td>63</td>
<td>L</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>HRMT</td>
<td>40</td>
<td>L</td>
<td>171</td>
<td>52</td>
<td>71</td>
<td>94/58</td>
<td>-</td>
<td>-</td>
<td>4,7</td>
</tr>
<tr>
<td>6</td>
<td>HD SWT</td>
<td>65</td>
<td>L</td>
<td>166</td>
<td>64</td>
<td>88</td>
<td>161/95</td>
<td>-</td>
<td>84 mg</td>
<td>5,4 mg</td>
</tr>
<tr>
<td>7</td>
<td>ST KTJ</td>
<td>56</td>
<td>P</td>
<td>156</td>
<td>60</td>
<td>80</td>
<td>140/90</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>MYT</td>
<td>50</td>
<td>P</td>
<td>151</td>
<td>65</td>
<td>89</td>
<td>-</td>
<td>230 mg</td>
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<tr>
<td>9</td>
<td>GNH</td>
<td>78</td>
<td>P</td>
<td>144</td>
<td>40</td>
<td>89</td>
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<tr>
<td>10</td>
<td>MH WYN</td>
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<td>L</td>
<td>157</td>
<td>51</td>
<td>88</td>
<td>160/90</td>
<td>-</td>
<td>111 mg</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>MYD</td>
<td>71</td>
<td>L</td>
<td>151</td>
<td>50</td>
<td>85</td>
<td>150/81</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>ST RML</td>
<td>60</td>
<td>P</td>
<td>154</td>
<td>50</td>
<td>80</td>
<td>150/70</td>
<td>246 mg</td>
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<td>-</td>
</tr>
<tr>
<td>13</td>
<td>BRKH</td>
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<td>152</td>
<td>83</td>
<td>108</td>
<td>150/80</td>
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<td>4,4</td>
</tr>
<tr>
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<td>P</td>
<td>158</td>
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<td>111</td>
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<tr>
<td>15</td>
<td>WGYM</td>
<td>49</td>
<td>P</td>
<td>153</td>
<td>50</td>
<td>71</td>
<td>124/76</td>
<td>-</td>
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<td>5,4</td>
</tr>
<tr>
<td>16</td>
<td>NSTO</td>
<td>67</td>
<td>L</td>
<td>158</td>
<td>62</td>
<td>91</td>
<td>130/80</td>
<td>-</td>
<td>-</td>
<td>6,2</td>
</tr>
</tbody>
</table>

4 Conclusions
This community service activity has been completed according to the plan. Partners and the community were very grateful for this activity and enthusiastically participated in it until the series of events was completed. Additionally, counselling could increase participants’ knowledge by 2.27%.

Acknowledgments
We would like to thank LPM UMY for supporting this activity.

References


