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Full Length Research Paper

Preliminary result on the immediate hypoglycemic effect of "JAMU" extract "JAMSI" on hyperglycemic volunteers

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The article studies the immediate hypoglycemic effect of "jamu" herbal extract JAMSI (produced by PT Mahkotadewa Indonesia; registered at Indonesian Food and Drugs Authority: TR053649111) among hyperglycemic volunteers. This study was designed as a pre and post treatment's effect evaluation among hyperglycemic volunteers. Volunteers were recruited from visitors to the "jamu" shop during the study, who were hyperglycemic and ready to be tested with the "jamu" remedy under study. Their blood sugar were tested using glucometer Accu-Chek Active (made in Germany) before and one hour after consuming the "jamu" under study ie. JAMSI. The paired blood sugar data were analyzed using student-t test with paired samples, one sided, with significance cut off point α=0,05. During two study days on 16th and 23rd February 2013 in Jakarta, there were 34 volunteers eligible to the study. They consisted of 20 female and 14 male, 20 volunteers were still consuming western hypoglycemic medicine. Their age ranging from 22 to 74 years (52,26 ±10,10 years), with diabetes mellitus history ranging from 1 to 33 years (9,36±8,27 years). Their average capillary blood sugar level before consumption of the tested "jamu" remedy was 243,03±97,97 mg/dl and one hour after consumption of the remedy was 197,94±100,01 mg/dl. The difference was highly significant (P<0,01). Analysis upon those with initial blood sugar above 200mg/dl versus those with lower than 200mg/dl indicated that the reduction of blood sugar level was more prominent among those with higher initial blood sugar level (table 3). The hypoglycemic effect was not significantly differently (P>0,05) between those still consuming oral antidiabetic drugs and those not consuming oral antidiabetic drugs. The "jamu" remedy under study ie. "JAMSI" showed very significant immediate hypoglycemic effect and apparently free from serious utoward effects among the tested volunteers. More studies are required to assess the medium and long term effects of the "jamu" remedy.

Keywords: JAMU, antidiabetic, herbal extract, diabetes mellitus.

INTRODUCTION

Diabetes mellitus (DM) is one of our public health problems nowadays, with increasing incidenceworldwide, especially in the developing countries (Suyono, 2009; Soegondo, 2009). In order to overcome the problem, all efforts must be mobilized, including traditional herbal medicine. According to Statistics Indonesia, the usage of natural medicinal products have been increasing steadily (Syarif, 2008).

Many Indonesian 1otaled1us "jamu" herbs have been known to be beneficial for diabetic patients. Some of them have been proven either in vitro or in vivo to have such potential, e.g. "sambilata" (Andrographis paniculata), "mahkota dewa" (Phaleria macrocarpa), and "mengkudu" (Morinda citrifolia) (Winarto, 2011; Untung, nd). The three herbs in extracted form have been combined with fermented honey (Namdeo, 2010; Syariffauzi, 2009), palm sugar (NN, nd;

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Table 1. Sexual distribution of the studied volunteers.

Sex	N	%
Male	14	41,18
Female	20	58,82

Table 2. Blood sugar level before and one hour after taking "Jamsi" herbal solution.

Blood sugar level	Before	After
Random time (n=34)	243,03±97,97 mg/dl	197,94±100,01 mg/dl*

*paired student-t test, one tail, p= 3,8877 $x10^{-8}$, highly significant.

Table 3. Change in blood sugar levels before and one hour after taking "Jamsi" herbal solution among two subgroups of the volunteers based on their initial blood sugar levels.

Volunteers subgroups	N	Before	After	P*
Random blood sugar < 200mg/dl	14	154,21±27,71 mg/dl	117,93±27,71 mg/dl	0,00069
Random blood sugar ≥200mg/dl	20	305,2±79,15 mg/dl	253,95±94,07 mg/dl	0,00001

*highly significant (P<0,01), paired t-test with one tail.

Dharma, 1987), to form a unique "jamu" formula termed "JAMSI" (registered in Indonesian FDA, number: TR053649111).

This study is a preliminary one to explore its immediate effect upon hyperglycemic volunteers, either diabetic or not yet confirmed as diabetic volunteers (PERKENI, 2011).

METHODOLOGY

The study was focused on the change in incidental capillary blood sugar before and after the volunteers took oral "jamu" extract under study ie. "Jamsi" (produced by PT Mahkotadewa Indonesia, composed of: oxygenated water 70ml, honey nectar 20ml, palm sugar 10g, extract of Phaleria macrocarpa 120mg, extract of Andrographis paniculata 120mg, extract of Morinda citrifolia 64mg).

The volunteers were taken from consecutive visitors to the "Jamsi" booth on two occasions (16^{th} and 23^{rd} February 2013) in Jakarta, who met the following criteria: (1) adult (age above 20 years); (2) incidental capillary blood sugar test result of 200mg/dl or above for diagnosis of DM, and between 90 and 199mg/dl for "not confirmed" DM; (3) ready to comply to the study protocol, ie. Have their blood sugar level checked before and one hour after taking two spoonful of the "Jamsi" herbal solution.

The capillary blood sugar levels were checked using glucometer Accu-Chek Active (made in Germany).

After the volunteers were briefed on the study protocol and ready to comply, then they are told to complete and sign an informed consent form. Then their blood sugar levels were checked and noted on the study form, ready for statistical analysis.

The change in volunteers' blood sugar levels before and after taking 2 spoonful of "Jamsi" herbal solution was analyzed using paired student-t test with one tail and significance limit α=0,05.

RESULTS

The volunteers that met the inclusion criteria otaled 34 persons, 20 female and 14 male (Table 1). The youngest aged 22 years and oldest 74 years, with mean 52,26 years and standard deviation 10,10 years. The history of DM averaged 9,36±8,27 years. Majority (21 out of 34) were still taking western medicine for controlling blood sugar (Table 5).

The average blood sugar level before taking "Jamsi" solution was 243,03±97,97 mg/dl and one hour afterwards was 197,94±100,01 mg/dl. The difference between them was highly significant (P<0,01), see Table 2. There was no outstanding untoward effects, except two people suffering from temporary dizziness which faded away after mobilizing.

If we devided the volunteers based on their random blood sugar levels into 200mg/dl or higher and below 200mg/dl, it was apparent that the decrease in random blood sugar level one hour after taking the "Jamsi" remedy was more prominent among those with higher blood glucose levels (Table 3). While if we divided the

Table 4. Change in blood sugar levels before and one hour after taking "Jamsi" herbal solution among two subgroups of the volunteers based on their consumption of blood sugar lowering western medicine.

Volunteers subgroups	N	Before	After	P*
Not consuming blood sugar lowering western drugs	13	229,54±113,13 mg/dl**	186,77±111,85 mg/dl**	0,000174
Consuming blood sugar lowering western drugs	21	251,38±89,26 mg/dl**	204,86±94,16 mg/dl**	0,0000354

*the difference in the capillary blood sugar levels before and after taking "Jamsi" remedy for each subgroup was highly significant (P<0,001), student-t test, paired with one tailed.
** the difference in the capillary blood sugar levels before and after taking "Jamsi" remedy between the two subgroup was insignificant (P>0,05), student-t test, two samples, two tailed.

Table 5. The general profile of 34 volunteers based on their age, diabetic history, drugs consumption, and blood sugar levels before and after taking "Jamsi" herbal solution.

No	Sex	Initial	Age (yrs)	DM history	Western medicine consumed	Time of taking Jamsi sol.	Blood sugar before taking Jamsi	Blood sugar 1 hr after taking Jamsi
1	M	Aap	22		None	10.15	114	116
2	M	Bah	38		None	10.00	180	101
3	M	Riy	39		None	12.10	146	112
4	F	EN	41	Since 2008	Glucovance 500/2,5Mg Jeli gamat	10.40	343	374
5	F	At	43			11.15	388	374
6	F	Id	43	1 yr ago	Glukopag 1/2 tablet		153	113
7	F	Ukp	43		None	10.30	127	109
8	M	Gan	47	Since 2003	Other herbs	14.30	202	126
9	F	LI	47		Metformil 500 Januvia 100	11.13	275	232
10	F	Ten	47	Since 2004	Glucodex 80Mg, Metformin 500Mg	10.35	160	180
11	F	DI	47	Since 2011	Amaril, half	12.02	211	133
12	F	SPS	48		None	10.35	329	273
13	F	ES	50	Since 1997	Insulin novoropid etc	10.19	284	237
14	F	Mak	50		None		182	99
15	M	DU	52	Never check	None	10.18	216	134
16	M	Sup	52	Since 2010	Doctor prescription	10.15	228	189
17	F	Yos	52	10 yrs ago	Amaril 500, Januvia	10.15	181	120
18	M	TK	53	Since 2010		12.10	262	220
19	M	SW	53	Since 2013	None	12.25	491	435
20	F	Ren	53	Since 1997	Medformin, Andrographis	18.00	292	244
21	F	MWS	56	Since 2013	Other herbs	14.30	214	136
22	F	RL	57			14.33	230	218
23	F	CS	57	Since 2012	Metformin, glibenclamide	09.50	336	152
24	F	JbA	58	2008	Glucovance, Mahkotadewa	09.57	182	127
25	M	MS	59	Since 2006	Glukopag	9.50	341	318

Table 5 Continue

26	M	HHK	59	Since 1990	Daonil / Diabetmin	09.50	397	359
27	F	FT	59	Since 2009	Meoformin	10.05	308	272
28	F	EP	59	Since 2005	Diamicron, Glucopag, herbs	10.31	337	288
29	M	HS	60	Since 1993	Insulin, lasix	10.30	179	98
30	F	Sur	60	Since 2009	Glucopag, other herbs	15.30	182	149
31	M	AS	62	12 yrs	Gluvas		113	68
32	M	Anh	63	Since 2012		07.00	117	111
33	M	Rah	74	Since 1979	Metformin, glibenclamide, Glucopag	15.30	420	365
34	F	KS	74	Since 1991	Glucopag SR, Jenovia, Insulin inj	11.00	143	148

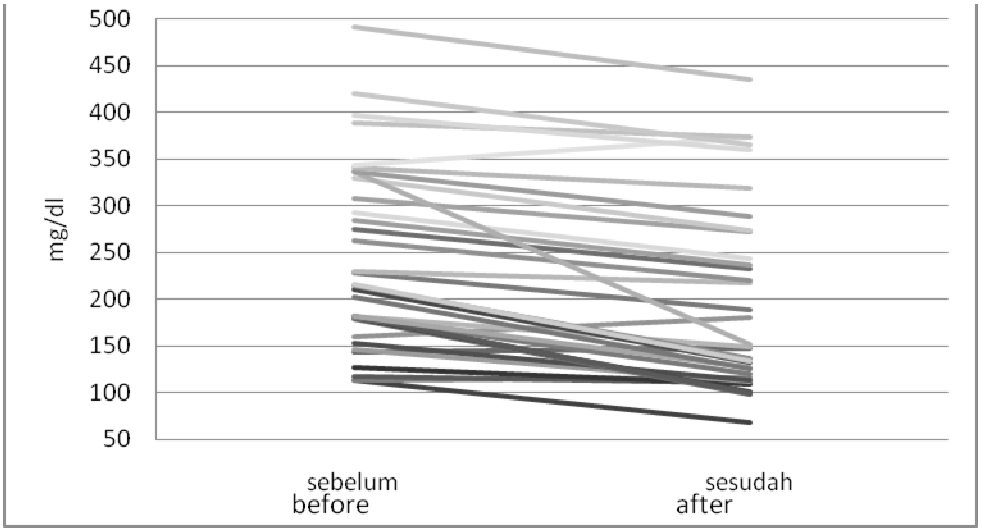

Figure 1. Line diagram depicting change in blood sugar levels before and one hour after taking "Jamsi" herbal solution among the 34 volunteers.

volunteers based on consumption of blood glucose lowering western medicine (n=21) or none (n=13), it was apparent that both groups showed very significant decline in blood sugar after taking the "Jamsi" remedy (Table 4). There was no significant difference between them in random blood sugar levels either before or after taking the "Jamsi" remedy.

Figure 1 depicted the line diagram of the change in blood sugar levels among the 34 volunteers.

DISCUSSION

From the preliminary study on 34 volunteers described above, it was apparent that "Jamsi" herbal solution showed very prominent hypoglycemic effect in short term. The blood sugar lowering effect was more prominent among volunteers with higher initial level of blood sugar (Table 3).

None of the volunteers suffered from hypoglycemia or other serious untoward effects, indicating the "Jamsi" remedy was quite safe. None the less there were 3 volunteers showing mild increase in blood sugar levels (in one, the blood sugar level could be decreased after addition of extra "Jamsi" dose), and 2 volunteers complaining temporary dizziness. Those might indicate that there were people who were more sensitive and others less sensitive toward the remedy being studied.

Table 4 data showed no significant difference in blood sugar lowering effect between subgroup still consuming

antidiabetic western medicine and subgroup not consuming other drugs. This could indicate that “Jamsi” solution could be safely taken along with western medical antidiabetic drugs.

Hypoglycemic effect of the “Jamsi” herbal solution seemed to evolve from all five of its herbal ingredients, ie. palm sugar (NN, nd; Dharma, 1987), extract of Phaleria macrocarpa, extract of Andrographis paniculata, extract of Morinda citrifolia (Winarto, 2011; Untung, nd; Dharma, 1987), and fermented honey (Namdeo, 2010; WIPO, 2009; Syariffauzi, 2009), each of which had been reported to possess antidiabetic substance and effect.

Further studies are warranted in order to explore its middle term and longterm effects upon controlling the blood sugar levels (HBA1C level), upon controlling the emergence of diabetic complications (microangiopathy and macroangiopathy), as well as upon the quality of life of diabetic patients as a whole.

CONCLUSION

The present study indicated that the “Jamsi” herbal solution possesses highly significant short-term hypoglycemic effect (P<0,01) among hyperglycemic volunteers. The consumption of other blood sugar lowering drugs by the volunteers seemed not influence the hypoglycemic effect of the remedy. No serious untoward effects were noted.

REFERENCES

Dharma AP (1987). Indonesian medicinal plants. Balai Pustaka. H: 25-26,37-38,181-182.

Namdeo KP, Shekhar V, Bodakhe SH, Shrivastava SK, Dangi J (2010). Chemical investigation of honey: a multiactive component of herbal therapeutic agent. IJRAP 1(1):85-89. www.ijrap.net.

NN (nd). The usefulness of palm sugar for diabetes. http://obatdiabetesmelitus.net/makanan-manis/manfaat-gula-aren-untuk-diabetes

Perkumpulan Endokrinologi Indonesia (PERKENI) (2011). Konsensus pengelolaan dan pencegahan diabetes melitus tipe 2 di Indonesia 2011. Cetakan keempat. PB PERKENI. H: 6-9.

Soegondo S (2009). Diagnosis dan klasifikasi diabetes melitus terkini. In: Soegondo S, Soewondo P, Subekti I (editor). Penatalaksanaan diabetes melitus terpadu. Balai Penerbit Fakultas Kedokteran Universitas Indonesia. H.19-29.

Suyono S (2009). Kecenderungan peningkatan jumlah penyandang diabetes. In: Soegondo S, Soewondo P, Subekti I (editor). Penatalaksanaan diabetes melitus terpadu. Balai Penerbit Fakultas Kedokteran Universitas Indonesia. H.3-10.

Syarif A (2008). Peranan toksikologi dalam pengembangan dan pemanfaatan obat bahan alam di Indonesia. Pidato pengukuhan guru besar tetap FKUI, Jakarta.

Syariffauzi (2009). Mead sebagai minuman hasil fermentasi madu yang dapat mengobati berbagai penyakit. http://syariffauzi.wordpress.com/category/my-articles/page/3/

Untung O (pemred) (nd). Trubus Info Kit vol. 8. Herbal Indonesia berkhasiat. Bukti ilmiah dan cara racik. Trubus. Depok. H. 125-130,148-153,374-380.

Winarto A, Adnyane IKM (2011). Insitu study of repopulation beta cell pancreas of diabetic model rat after treating sambiloto. In: Prosiding “Globalization of Jamu Brand Indonesia. The 2nd international symposium on temulawak. The 40th meeting of national working group on Indonesian medicinal plant”. IPB International Convention Center. Bogor. H:164.

World Intellectual Property Organization (WIPO) (2009). International Bureau. International publication number: WO2009/036529 A1. Diabetes prophylaxis and treatment remedy and a method of getting it.