A CLINICAL STUDY ON THE MANAGEMENT OF STAULYA WITH SPECIAL REFERENCE TO OBESITY BY DASHANG GUGGULU

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Received 30-04-2016; Revised 28-05-2016; Accepted 27-06-2016

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ABSTRACT

Introduction: Charaka has quoted a Sthaulya under the eight varieties of impediments which designated as Astau-Nindita Purusha, Ati-Sthaulya comprises one of them. He listed eight defects underlying- Sthaulya Purusha, Ayuhrasa, Javoparodha, Alpa-vyavayita, Daurbalya, Daurgandhya, Swedabadha, Ati-trisha, Ati-kshudha.

Aims and Objective: To study the effect and assess the clinical efficacy of Dashang Guggulu on the management along with different parameters of Sthaulya (obesity).

Conclusion: Dashang Guggulu, Triphala churna and Musta are easily available, after this study it is was observed that this remedy is useful for the prevention of obesity. No side effects of the therapy were found. It was observed that the statistically significant results were obtained in the parameters like Sharir bhar (Weight), BMI, Waist Circumference, Hip circumference; Waist /Hip ratio.

Keywords: Sthaulya, Dashang Guggulu, Triphala churna, Purusha, Ayuhrasa, Javoparodha.

INTRODUCTION

Sthaulya (obesity) is discouraged by the society for social as well as medical reason. Obesity is the most common nutritional disorder in affluent societies. The incidence of Diabetes mellitus, hypertension, angina pectoris, and myocardial infarction are higher among obese individuals. Commonly obesity is due to excessive eating and lack of adequate exercise. Charaka has quoted a Sthaulya under the eight varieties of impediments which designated as Astau-Nindita Purusha, Ati-Sthaulya comprises one of them1. Charaka also listed this problem under Santarpanajanita Vyadhi.2 He listed eight defects underlying- Sthaulya Purusha, Ayuhrasa, Javoparodha, Alpa-vyavayita, Daurbalya, Daurgandhya, Swedabadha, Ati-trisha, Ati-kshudha. Dalhana seems to be more explicit while commenting on a Medoroga specified that Agni which is involved in pathogenesis of the disease viz. Dhatvagnimandya.

According to Charaka in the case of fatty person, other Dhatu doesn’t grow to the extent.3 In today’s fast life incongruous food habit and relatively less exercise can be taken as major cause of obesity. Vagbhatta opines that derangement of Agni or digestive power leads to production of Ama, which disturbs tissue fire of fatty tissues and blocks the proper formation of further tissues. Improperly formed fatty tissue accumulates in the body causing obesity. Accumulated fats causes disturbance to movement of Vata which turned increases appetite, due to Chala Guna of Vata. Patients therefore its more an entire food is then converted into improper fatty tissue.5

Obesity is an epidemic of the 21st century. As per Preventive Social Medicine textbook of Park(edition 24), the prevalence rate of obesity in India for male is 12.8% and for female 16%. WHO identifies main global leading risks factors causing today’s diseases, disability and deaths. In the analysis carried out for World Health Report 2002, approximately 58% of diabetes, 21% of heart disorders and 8–42% of certain cancers globally were attributable to excess weight. The prevalence of developing type 2 diabetes and cardiovascular diseases rises steeply with increasing body weight6.

Aims and Objective:

Aims: To study the effect of Dashang Guggulu on the management of Sthaulya (obesity).
Objectives:
- To assess the clinical efficacy of Dashang Guggulu on different parameters of Sthaulya (Obesity).
- To compare the clinical efficacy of Dashang Guggulu with that of Triphala and Musta Churna.

Study Design: Open randomized controlled study.

Ethical Clearance: Ethical Clearance was obtained before initiation of the study. A well informed consent was taken from the subject in the language they understood well before recruiting into study.

Place of work: Kayachikitsa O.P.D of Govt. Ayurveda College and Hospital, Nagpur.

MATERIALS AND METHODS

A. Diagnostic Criteria
A special proforma was made to collect information about clinical signs and symptoms of the disease.
1. Standard height–weight chart were included.
2. The value of BMI were used (>25)
3. Waist and Hip circumference
4. Waist / Hip ratio

B. Investigations
1) Routine blood and urine investigations were done before treatment.
2) Blood sugar (Fasting and Post Prandial) before treatment was done.

Management of groups:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>TRIAL GROUP</th>
<th>CONTROL GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug</td>
<td>Dashang Guggulu</td>
<td>Triphala and Musta Churna</td>
</tr>
<tr>
<td>Dose</td>
<td>500 mg</td>
<td>3 gm</td>
</tr>
<tr>
<td>Anupan</td>
<td>KoshaJal</td>
<td>KoshaJal (warm water)</td>
</tr>
<tr>
<td>Frequency</td>
<td>Twice a day Abhaktakal</td>
<td>Twice a day Abhaktakal (before meal)</td>
</tr>
<tr>
<td>Duration</td>
<td>3 months</td>
<td>3 months</td>
</tr>
</tbody>
</table>

Inclusion Criteria:
1) Patients fulfilling diagnostic criteria and signs and symptoms of Sthaulya.
2) Age between 20 to 60 yrs age group.

Exclusion Criteria:
1) Patients not willing for trial.
2) Patients having BMI less than 25.
3) Patients having complications such as diabetes, cardiovascular diseases etc.
4) Patients having other systemic complications like malignancies or having hepatic/renal problems.
5) Patients having poorly controlled blood pressure >160/100 mmHg.
6) If any complication arises during treatment or if any patient discontinues the treatment, these cases were liable for rejection.
7) Patients on prolonged medication (>6weeks) with corticosteroids, or any other drugs that may have an influence on the outcome of the study.
8) Patients who are currently participating in any other clinical trials (since last 6 months).

All of the above patients will not be included in the study.

Criteria of Assessment:
Assessments were done subjectively as well as objectively.

Objective: It were assessed as per given in diagnostic criteria.

Subjective:
1) Symptoms of Sthaulya Vyadhi mentioned in the text or practically observed were assessed at each follow-up and presence or absences of them were registered.
2) All symptoms were graded into grade scale from 0 onwards up to 5 on the basis of severity to assess the changes and this study in gradation were done at each follow up.

Gradation of symptoms:
Following scoring patterns were adopted for the assessment of sign and symptoms.

1. Angachalatva (movement of body)
- Absence of Chalatva 0
- Little visible movement after fast movement 1
- Little visible movement after moderate movement 2
- Movement after mild movement 3
- Movement even after changing posture 4

2. Atikshudha (excessive hunger)
Atikshudha was decided on the basis of Abhyavaharana Shakti and Jarana Shakti.

a. Abhyavaharana Shakti (Capacity of food intake)
- Person not at all taking food 0
- Person taking food in less quantity once a day 1
- Person taking food in less quantity twice in a day 2
- Person taking food in moderate quantity twice in a day 3
- Person taking food in normal quantity twice in a day 4
- Person taking food in excessive quantity twice or thrice 5

b. Jarana Shakti (Digestive power)
- According to presents of Jirna Ahara Lakshana (MN. 6/24) Utsaha,
  Laghuta, UdgarSuddhi, Kshudha-Trisha Pravritti, Yathochita, Malotsarga.
- Presence of one symptom after 6 hours 0
- Presence of two symptoms after 6 hours 1
- Presence of three symptoms after 5 hours 2
- Presence of four symptoms after 5 hours 3
- Presence of all symptoms after 4 hours 4
- Presence of all symptoms within 4 hours 5

3. Kshudraswasa (Dyspnoea)
- Dyspnoea after heavy work but relieved soon and upto tolerance 0
- Dyspnoea after moderate work but relieved later and upto tolerance 1
- Dyspnoea after little work but relieved later and upto tolerance 2
- Dyspnoea after little work but relieved later and beyond tolerance 3
- Dyspnoea in resting condition 4

4. Gatrasada (fatigue)
- No fatigue 0
- Little fatigue in doing hard work 1
- Moderate fatigue in doing routine work 2
- Excessive fatigue in doing routine work 3
- Excessive fatigue even in doing little work 4

5. Daurgandhya (Odour of body)
- Absence of bad smell 0
- Occasional bad smell in the body removed after bathing 1
- Persistent bad smell limited to close areas difficult to suppress with deodorants 2
- Persistent bad smell felt from long distance is not suppressed by deodorants 3
- Persistent bad smell felt from long distance even intolerable to the patient himself 4

6. Swedadhikya:Sweating in excess(at normal temperature in normal condition) :
- Sweating after heavy work and fast movement or in hot season 0
- Profuse sweating after moderate work and movement 1
- Sweating after little work and movement 2
- Profuse sweating after little work and movement 3
- Sweating even at rest or in cold season 4

7. Atipipasa :( Excessive thirst)
- Normal thirst 0
- Upto 1 litre excess intake of water 1
- 1 to 2 litre excess intake of water 2
- 2 to 3 litre excess intake of water 3
- More than 3 litre of water 4

8. Snigdhangata :( greasiness of body)
- Normal snigdhata 0
- Oily luster of body in summer season 1
- Oily luster of body in dry season 2
- Excessive oily luster of body in dry season which can be removed with difficulty 3
- Persistence and profuse stickiness all over body 4

9. Daurbalya(General debility)
- Can do routine exercise 0
- Can do moderate exercise without difficulty 1
- Can do only mild exercise 2
- Can do mild exercise with very difficult 3
- Cannot do even mild exercise 4

10. Alasya(Feeling lethargic)
- No alasya (doing work satisfactory with proper vigour in time) 0
- Doing work satisfactory with initiation late in time 1
- Doing work unsatisfactory with lot of mental pressure and late in time 2
- No starting any work in his own responsibility doing little work very slowly 3
- Does not have any initiation and not wants to work even after pressure 4

11. Nidradhikya (excessive sleep)
- Normal sleep 6-7 hrs. per day 0
- Sleep upto 8 hrs./day with Angagaurava 1
- Sleep upto 8 hrs./day with Angagaurava and Jrimbh 2
- Sleep upto 10 hrs./day with Tandra 3
- Sleep more than 10 hrs./day with Tandra and Klama 4

OBSERVATION AND RESULTS
In this study 60 patients of Sthaulya were selected randomly as per criteria of selection irrespective of religion, socio-economic status. All these patients were diagnosed with the help of criteria of diagnosis. Specially designed Case Report Form (CRF) was used to fill the all information of subjects. Patients attending Kayachikitsa O.P.D of the hospital were examined prior to the start of treatment with respect to the Performa. All these values were termed as before treatment values. (B.T)

<table>
<thead>
<tr>
<th>Group</th>
<th>Experimental</th>
<th>Control</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>08</td>
<td>16</td>
<td>24</td>
<td>40%</td>
</tr>
<tr>
<td>Female</td>
<td>22</td>
<td>14</td>
<td>36</td>
<td>60%</td>
</tr>
</tbody>
</table>

In this study, totally 24 [40%] were male and 36 [60%] were female while more female were recruited in experimental group it may be due random selection of patients.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Agni and Koshta Parikshan</th>
<th>Experimental Group</th>
<th>Control Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Patients</td>
<td>Percentage %</td>
<td>No. of Patients</td>
<td>Percentage %</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Manda</td>
<td>13</td>
<td>43.33</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>Madhyam</td>
<td>14</td>
<td>46.67</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Visham</td>
<td>03</td>
<td>10.00</td>
<td>03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Agni</th>
<th>Percentage %</th>
<th>Koshta</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manda</td>
<td>25</td>
<td>83.33</td>
<td>07</td>
</tr>
<tr>
<td>2</td>
<td>Krur</td>
<td>05</td>
<td>16.67</td>
<td>23</td>
</tr>
</tbody>
</table>
Clinical Observations:

Table No.3 Showing Percentage of Relief (Subjective Criteria) in Each Symptom of 60 Patients of Sthaulya:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Symptoms</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Angachalatva</td>
<td></td>
<td>61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Atikshuda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>Abhyavaran Shakti</td>
<td>104</td>
<td>77</td>
</tr>
<tr>
<td>b)</td>
<td>Jarana Shakti</td>
<td>75</td>
<td>49</td>
</tr>
<tr>
<td>3</td>
<td>Kshudraswasa</td>
<td>33</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Gatrasada</td>
<td>53</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>Daurgandhya</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Swedadhikya</td>
<td>52</td>
<td>13</td>
</tr>
<tr>
<td>7</td>
<td>Atipipasa</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>Snighdhangata</td>
<td>33</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Daurbalya</td>
<td>44</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>Alasya</td>
<td>33</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>Nidradhikya</td>
<td>42</td>
<td>13</td>
</tr>
</tbody>
</table>

Table No.4 Showing Percentage of Relief (Objective Criteria) in Each Parameter of 60 Patients of Sthaulya:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameters</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td>BT Mean</td>
<td>AT Mean</td>
</tr>
<tr>
<td>1</td>
<td>Sharir Bhara</td>
<td>71.00</td>
<td>63.13</td>
</tr>
<tr>
<td>2</td>
<td>BMI</td>
<td>28.88</td>
<td>25.67</td>
</tr>
<tr>
<td>3</td>
<td>Waist Circumference</td>
<td>99.43</td>
<td>98.76</td>
</tr>
<tr>
<td>4</td>
<td>Hip circumference</td>
<td>108.3</td>
<td>107.8</td>
</tr>
<tr>
<td>5</td>
<td>Waist /Hip ratio</td>
<td>0.91</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Effect of Therapy on Symptoms of Sthaulya in Experimental Group Statistically:

In Experimental Group, regarding symptom Angachalatva the Mean ± SD value obtained Before Treatment (BT) was 2.03 ± 0.92 and After Treatment (AT) it was changed as 0.56 ± 0.62 which was statistically considerably extremely significant (p<0.001).

Likewise the effects of therapy seen statistically considerably extremely significant in symptom Abhyavaran shakti, Jarana shakti, Kshudraswasa, Gatrasada, Daurgandhya, Swedadhikya, Atipipasa, Snighdhangata, Daurbalya, Alasya and Nidradhikya as p value <0.001.

b. Comparison between Two Group w.r.t Symptoms Score of 60 Patients of Sthaulya:

The difference between before and after treatment score of both group was found that the sum of rank of experimental group for the symptom Angachalatva was 662, Test statistic (U) was 238, and SEd was 0.92 where the test statistic U was between Population Mean ± 1.96 SD which was extremely significant at 5% level of significance. (P<0.05) Therefore the difference between Symptom Score of Angachalatva of Experimental group is statistically significant, so therefore we can conclude that in the symptom Angachalatva, trial drug has effective statistically along with while in Abhyvaran shakti, Jaranshakti, Kshudraswasa, Gatrasad, Swedadhikya, Atipipasa, Snighdhangata, Daurbalya and Alasya and Nidradhikya as p value <0.001.

a. Effect of Therapy on Symptoms of Sthaulya in Control Group Statistically:

In Control Group, regarding symptom Angachalatva the Mean ± SD value obtained Before Treatment (BT) was 2.13 ± 0.73 and After Treatment (AT) it was changed as 1.20 ± 0.67 which was statistically considerably extremely significant (p<0.001).

Likewise the effects of therapy seen statistically considerably very significant in symptom Abhyavaran shakti, Jarana shakti p value is <0.05 and considerably extremely significant in symptoms like Kshudraswasa, Gatrasada, Daurgandhya, Swedadhikya, Atipipasa, Snighdhangata, Daurbalya, Alasya and Nidradhikya as p value <0.001.
After comparison of both groups statistically Sharir bhar, BMI and Waist Circumference has decreased as desired in experimental group by the treatment and in parameters like Hip circumference and Waist /Hip ratio there was no statistical difference so both group were equally effective.

Probable Mode of Action of Dashang Guggulu:
The disease Sthaulya originates due to consumption of Kapha Vriddhikara Ahara, Vihara and Manasa Nidana. These factors derange Jatharagni causing Ama, Annarasa, which results in Medodhatvagni-mandya.

Dashang Guggulu encounters Vata and Kapha Dosha by virtue of its Katu-Rasa dominance and Ushna-Virya. Katu-Rasa performs Medo-Kledopa-Shoshana action. Sthairya Guna of Madhura Rasa combats Sharir Shaithilya. Ushna-Virya also helps in Kleda and Meda Vilayana action. All these

Guna also helps in Dhatwagnimandya, Amapachana thereby alleviates Aparipakwa and Ama dhatu.
Due to Katu-Rasa, all the involved channels are dilated i.e. “Srotansi Vivrunoti” action. Katu-Rasa and Ushna-Virya check over Medovaha and Mamsavaha Srotodushti.
In nut cell in Dashang Guggulu maximum ingredient have Katu Ras, Laghu, Ruksa and Ushna Virya, Katu Vipak, Vata-Kaphashamak, Karshana, Lekhaniya, Medorogahara, Amapachana, Dhatu shoshana properties which helps in normalize the state of Agni. Thus, regulated Jatharagni, checked the excessive growth and accumulation of Medodhathu and thereby causing Lakshana Upshamana of disease Sthaulya.

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Parameters</th>
<th>Mean ± SD Gr.A</th>
<th>Mean ± SD Gr.B</th>
<th>±S Ed Gr.A</th>
<th>±S Ed Gr.B</th>
<th>t Value</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sharir Bhara</td>
<td>7.86 ± 0.86</td>
<td>3.73 ± 0.52</td>
<td>0.15</td>
<td>0.09</td>
<td>22.51</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>2.</td>
<td>BMI</td>
<td>3.20 ± 0.58</td>
<td>1.47 ± 0.28</td>
<td>0.10</td>
<td>0.05</td>
<td>14.59</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>3.</td>
<td>Waist Circumference</td>
<td>0.66 ± 0.80</td>
<td>0.26 ± 0.44</td>
<td>0.14</td>
<td>0.08</td>
<td>2.382</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>4.</td>
<td>Hip circumference</td>
<td>0.41 ± 0.62</td>
<td>0.16 ± 0.37</td>
<td>0.11</td>
<td>0.06</td>
<td>1.838</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>5.</td>
<td>Waist /Hip ratio</td>
<td>0.002±0.555</td>
<td>0.0009±0.002</td>
<td>0.0009</td>
<td>0.0004</td>
<td>1.083</td>
<td>&gt;0.05</td>
</tr>
</tbody>
</table>

Total Effect of Therapy:-

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Effect of Therapy</th>
<th>No. of Patients</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Markedly Improved &gt;75%</td>
<td>04</td>
<td>13.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>00</td>
<td>00.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>04</td>
<td>06.67</td>
</tr>
<tr>
<td>2.</td>
<td>Moderate improved (50-74%)</td>
<td>18</td>
<td>60.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>01</td>
<td>03.33</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>19</td>
<td>31.67</td>
</tr>
<tr>
<td>3.</td>
<td>Mild improved 25-49 %</td>
<td>08</td>
<td>26.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26</td>
<td>86.67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>34</td>
<td>56.66</td>
</tr>
<tr>
<td>4.</td>
<td>No improvements &lt;25%</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03</td>
<td>10.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>03</td>
<td>05.00</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Sthaulya is a typical obesity involving the Medovriddhi with which this study deals with typical obesity, not with the reasonable adiposity, which is a reflection of endocrine imbalance. The term Medasvi is suggestive of nutritional status of the individuals indicating a well nourished disposition rather than disease.

Lack of physical activity, frequent intake of food, industrialization, stress during the work, various types of junk food e.g. fast food, bakery items, increased amount of the soft drink result is Sthaulya. An individual whose increased Meda and Mamsa Dhatu makes his hips, abdomen and breasts pendulous and whose vitality is much less than his body size is Sthaulya (obese). Sthaulya has been classified under "Ashta Nindita Purusha". (Ch.Su.21).

A number of herbal, mineral and herb mineral medicines are described in various ancient texts of Ayurveda for treating Sthaulya. Amongst these, we have chosen Vangasanokta ‘DashangGuggulu’ which is having ingredients like Triphala, Trikatu, Trimadand Guggulu because of their Medohara and Kaphaghna properties mentioned in literature. (vangsenmedovikar 29)

**CONCLUSION**

Dashang Guggulu, Triphala churna and Musta are easily available as well as is cost effective. It was observed that result obtained in the parameters like Sharir bhar (Weight), BMI, Waist Circumference, Hip circumference; Waist /Hip ratio are extremely significant statistically.

In the parameters like Hip circumference and Waist /Hip ratio both group have equal effect statistically. Overall it was observed that, percentage of relief in each patient of Sthaulya in experimental group was observed as 59.86% while 33.82 % in control group. On an average, in both group 46.84 % reliefs got in each patients of Sthaulya from the symptoms they suffered. No side effects of the therapy were found.

**ACKNOWLEDGEMENT**

Author is grateful to Dean, Govt. Ayurveda College, Nagpur for permitting me to conduct this study in this Institute. Author also acknowledges to Dr. P.R. Kabra HOD and Professor Dept. of Kayachikitsa for his valuable guidance and support during the completion of my study.
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Source of support: Nil, Conflict of interest: None Declared