STRESS, ANXIETY AND DEPRESSION

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SUMMARY

The acute response to stress is embodied in the ‘fight or flight reaction’, inducing a state of anxiety. When stress is long-continued, depression may develop insidiously under the cloak of continuing anxiety symptoms. Depression inhibits the ability to cope with stress and so a ‘vicious circle’ becomes established, depression aggravating stress and vice versa. Of 100 patients attending the Maudsley Stress Clinic, 49 were suffering from major depression (DSM-III-R). Treatment with antidepressant drugs was highly effective in breaking the vicious circle and improvement in depression was accompanied by a reduction in severity of the various stress factors measured. Choice of drug is important, and when sleep disturbance is prominent, then it is better to use a sedative antidepressant. Alternatively, a short-acting hypnotic may be useful, particularly during the first few weeks of treatment. It is better to use both antidepressant and hypnotic drugs that restore a normal pattern of sleep, particularly in relation to deep sleep. © 1997 by John Wiley & Sons, Ltd.


KEY WORDS — anxiety; depression; sleep; stress vicious circle; stress clinic

All higher living organisms are programmed with the ‘fight or flight’ response to stress. In the wild, constant fear of attacks by predators creates an existence fraught with ever-present anxiety. It can justly be said that the animal ‘stress jungle’ is similar to the human ‘anxiogenic jungle’. Life-endangering stress is not often encountered by human beings, but has been replaced by other more subtle stresses that exert far-reaching effects on the mental processes. The ‘fight or flight’ response is inappropriate for the contemporary life of mankind and may result in adverse mental and psychological effects, as for example: anxiety, panic disorder, phobias and depression. In particular, when the stress situation is perpetuated over a period of time, depression may develop insidiously under the cloak of continuing anxiety symptoms: the well-known ‘masked depression’. A vicious circle becomes established only too easily, whereby ever-deepening depression increasingly diminishes the individual’s ability to cope with the original stress problems (Fig. 1).

Anxiety induces depression, and sleep impairment is a common accompaniment of both, while lack of sleep creates further stress. The immune system may be impaired by insomnia, stressful life events and depression, an extreme example being ‘voodoo death’. As this author (Cohen) states: ‘the victim must believe that the curse works and that he or she cannot control it. Furthermore, the role of the community and family is crucial, since the support is withdrawn if the cursed person tries to resist his or her fate. As a consequence, the voodoo victim feels cast out, isolated, alone, seeing death as the only escape from an intolerable loneliness’. A study by Jacobs et al. showed that psychological stress adversely affected the

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susceptibility of 394 healthy subjects to develop colds when deliberately infected with respiratory viruses. Infection became established in 82 per cent of the subjects, as compared to only 19 per cent of a control group. These authors concluded that psychological stress was associated in a dose–response manner with an increased risk of acute infectious respiratory illness.

EVALUATING STRESS

The Wheatley Stress Profile (WSP)\(^7,8\) has been developed to measure the effects of stress in nine life areas: social habits,\(^9,10\) social stress,\(^11\) life events, sexual stress, sleep problems,\(^12,13\) psychiatric effects, problems of old age,\(^14\) menstrual stress and ‘stress and the heart’\(^15,16\) (Table 1).

In an analysis of the first 100 patients seen at the stress clinic, the principal diagnoses made are shown in Table 2.

In some cases, more than one principal sequela of stress was present: for example, depression and insomnia together. However, it is significant that 49 of these patients (49 per cent) were suffering from depressive illness as diagnosed by DSM-III-R. This analysis indicates that there is a considerable potential for treatment of the psychiatric accompaniments of stress, in order to break the vicious circle of stress–illness–stress. For example, when depression is induced by stress, or indeed is the cause of it, the very nature of the symptoms increases that stress and further inhibits the individual’s ability to cope with it.

ANTIDEPRESSANT DRUGS

The effectiveness of antidepressant drug treatment of the stress–depression paradigm is illustrated by the mean stress profiles of 21 cases of depression before and after treatment, as shown in Fig. 2.

Over the 3-month treatment period, there was significant relief of depression \( (p < 0.01) \) and, accompanying this, relief in the severity of stress in the following areas: social habits, life events, sleep, anxiety, menstruation, stress and the heart \( (p < 0.01) \) and social stress \( (p < 0.05) \). Further confirmation for this relationship between stress and depression is provided by comparing the mean scores of the Hamilton Depression Rating Scale (HDRS) and the total scores on the WSP, before and after treatment (Fig. 3).

Highly significant correlations were established between the total stress scores and the principal diagnoses of anxiety conditions and of depression (Table 3).

These results again illustrate the close relationship between anxiety states as a continuing response to stress and associated depressive illness.

SLEEP DISTURBANCE

The function of sleep is essentially restorative in nature and physiological and psychological effects may ensue when it is disturbed.\(^17,18\) Insomnia is commonly induced by stress and continuing lack of sleep further inhibits the coping response to that

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Table 1 — Stress areas evaluated by the WSP

|-----------------------------|------------------|-----------------|---------------|-----------------|---------------------|----------------------|--------------------|------------------|---------------------|

Table 2 — Principal diagnoses made in 100 patients under stress

<table>
<thead>
<tr>
<th>Principal stress</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>General anxiety</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>Social phobia</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Simple phobia</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Major depression</td>
<td>49</td>
<td>21</td>
</tr>
<tr>
<td>Insomnia</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Organic illness</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Emotional</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Situational</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3 — Correlations between HDRS, HARS and WSP in anxiety states and depression

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Total stress vs Ham. A</th>
<th>Ham. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anx./pan./phob. ( (N = 43) )</td>
<td>0.48</td>
<td>0.52</td>
</tr>
<tr>
<td>( p &lt; )</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>Depression ( (N = 54) )</td>
<td>0.45</td>
<td>0.5</td>
</tr>
<tr>
<td>( p &lt; )</td>
<td>0.001</td>
<td>0.001</td>
</tr>
</tbody>
</table>
stress. Sleep disturbance is a prominent feature of both anxiety and depression as shown in a recent study from the Stress Clinic.\textsuperscript{19}

The Sleep section of the WSP was used to assess clinical sleep disturbance in 31 patients with anxiety and 44 with depression. Five aspects of sleep are evaluated in the WSP, namely: delayed onset, nocturnal wakings, early morning waking, average duration of sleep and well-being on final waking. Each item is assessed on a defined three-point severity scale (0–2) (Table 4).

In the anxiety cases the mean score on the Hamilton Anxiety Rating Scale (HARS) was 22.9 (SEM ± 1.0) and in the depression cases the mean scores on the HDRS was 22.8 (SEM ± 0.9). Only one patient with anxiety did not suffer from any...
sleep disturbance (3 per cent), as compared to two with depression (5 per cent). The mean severity scores for the different items are shown in Fig. 4.

The mean severity of all five insomnia items was greater in depression than in anxiety, being statistically significant for sleep onset ($p < 0.002$), early morning waking ($p < 0.005$) and state on waking ($p < 0.02$). Sleep impairment includes excessive sleep as well as reduced sleep and five of the depression patients were suffering from hypersomnia as compared to one anxiety patient. Thus, these results showed reduced sleep to be a far more common problem in these patients under stress.

**THE RIGHT DRUG FOR THE RIGHT PATIENT**

As the depression ‘lifts’ with antidepressant drug treatment, so does the sleep disturbance improve. Almost invariably there is a ‘lag period’ of 2–3 weeks before the antidepressant effect becomes established and improvement in sleep may be delayed beyond this. In consequence, it may be necessary to use a hypnotic drug, at least during the first few weeks of antidepressant therapy. In the case of anxiety, this may also be an important part of treatment. However, in choosing ‘the right drug for the right patient’, the quality of sleep must be considered as well as its duration. For example, all benzodiazepine hypnotics and tranquillizers improve sleep by increasing light sleep (stages I and II on the sleep EEG) at the expense of deep sleep (SWS, stages III and IV) and REM sleep. Both of these very important stages are already impaired in depression. On the other hand, the newer non-benzodiazepine hypnotics, such as zopiclone and zolpidem, induce a much more normal sleep pattern and may actually increase SWS. These have been recently reviewed by the author.

This may also be an important factor when determining the most suitable antidepressant drug to use. Most patients with depression also suffer from insomnia, but there is an important minority

<table>
<thead>
<tr>
<th>Sleep problem</th>
<th>Score 0</th>
<th>Score 1</th>
<th>Score 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Delayed onset</td>
<td>$&lt; 1/2$ h</td>
<td>$1/2–1$ h</td>
<td>$&gt; 1$ h</td>
</tr>
<tr>
<td>2. Wakings in night</td>
<td>$0–1$</td>
<td>$2–3$</td>
<td>$&gt; 4$</td>
</tr>
<tr>
<td>3. Early morning waking</td>
<td>$&lt; 1/2$ h</td>
<td>$1/2–1$ h</td>
<td>$&gt; 1$ h</td>
</tr>
<tr>
<td>4. Hours of sleep</td>
<td>$7–9$</td>
<td>$5–6$</td>
<td>$&lt; 5/ &gt; 9^*$</td>
</tr>
<tr>
<td>5. Feeling refreshed on waking</td>
<td>Completely</td>
<td>Moderately</td>
<td>Not much</td>
</tr>
</tbody>
</table>

*Either/or.
who sleep excessively, this usually being associated with overeating. For the former, a sedative antidepressant is indicated, while for the latter a more ‘alerting’ drug may be more appropriate.

Since it follows that the majority of depressed patients will require a more sedative antidepressant, due consideration needs to be given to the effects of such drugs on the sleep EEG. For example, the tricyclic compounds further reduce both SWS and REM stages of sleep, whereas drugs such as mianserin, trazodone, mirtazepine and nefazodone do the opposite, thereby enhancing sleep quality.

CONCLUSION

Stress, anxiety and depression are intimately related and form a vicious circle whereby the one aggravates the other. In diagnosing a patient under stress, the common coexistence of concealed underlying depression must not be overlooked and, when present, treated vigorously with appropriate antidepressant drugs. Conversely, in a patient who presents with depressive illness, assiduous concern should be directed to the many stress factors that may be contributing to and aggravating the basic illness.

The relationship between anxiety and depression is illustrated by a quotation from the Roman writer Pliny the younger:

Grief has limits, whereas apprehension has none.
For we grieve only for what we know has happened,
but we fear all that possibly may happen.23

The origins of depression are indeed conceived in the past, while anxiety constitutes a concern for the future. When induced by stress, anxiety symbolizes the future of the present and begets depression, which might be termed the present of the past.

REFERENCES