

mean duration of labour for primiparous women was less than six hours.<sup>7</sup> Only 5% of the women had labours lasting longer than 10 hours. After active management of labour had been introduced their definition of prolonged labour was reduced from 36 hours to 12 hours. The prevalence of caesarean section varied from 4.0% to 5.3%. The other components of active management include the artificial rupturing of the membranes if labour does not progress according to a predetermined schedule and the use of intravenous oxytocin if the desired progress is not achieved by rupturing the membranes. These measures were used in 30% of the cases. Although the effect of each of the three components has never been evaluated separately, the continuous support given by the midwife in this system could have effects similar to those observed in our two studies.

We can only speculate about the mechanisms by which social support reduces the duration of labour and perinatal complications. Although the presence of a companion might account for the obstetrician making fewer interventions, it cannot also account for the reduced duration of labour. We favour explanations based on the effects the companion may have on the mother. Adrenaline is known to reduce uterine muscle contractions.<sup>8</sup> Lederman *et al* noted a correlation between plasma adrenaline concentrations and self reported anxiety.<sup>9</sup> Increased concentrations of plasma adrenaline were associated with both anxiety and prolonged duration of labour. By lessening anxiety in women in labour social support may prevent an increase in catecholamine concentrations and thus shorten the duration of labour. Studies in pregnant pigs and monkeys reveal that psychological stress can reduce uterine and placental blood flow and thereby fetal oxygenation.<sup>10 11</sup> By reducing the stress of labour

social support might reduce the number of infants admitted for intensive care. If the results of this study can be replicated in other obstetric units in other hospitals present practices may be appreciably altered. This model may be useful in exploring the mechanisms by which support influences physiological processes.

This study was supported by grants from the Thrasher Fund, the Pitway Corporation Charitable Foundation, and the Maternal and Child Health Research (MC-R-390430).

## References

- 1 Oakley A. Cross-cultural practices. In: Chard T, Richards M, eds. *Benefits and hazards of the new obstetrics*. Lavenham, Suffolk: Spastic International Medical Publications, 1977:18-34.
- 2 Sosa R, Kennell J, Klaus M, Robertson S, Urrutia J. The effect of a supportive companion on perinatal problems, length of labor, and mother-infant interaction. *N Engl J Med* 1980;**303**:597-600.
- 3 Raphael D. *The tender gift: breastfeeding*. Englewood Cliffs: NJ Prentice-Hall, 1973.
- 4 Dixon WJ, Brown MB, eds. *Biomedical computer programs: P-series*. Berkeley: University of California Press, 1979.
- 5 Murdock GP, White DR. Standard cross-cultural sample. *Ethology* 1969;**8**:329-69.
- 6 Nuckolls KB, Cassel J, Kaplan BH. Psychosocial assets, life crisis and the prognosis of pregnancy. *Am J Epidemiol* 1972;**95**:431-41.
- 7 O'Driscoll K, Meagher D. *Active Management of Labor*. Philadelphia: WB Saunders, 1980.
- 8 Zuspan FP, Cibels LA, Pose SV. Myometrial and cardiovascular responses for alterations in plasma epinephrine and norepinephrine. *Am J Obstet Gynecol* 1962;**84**:841-51.
- 9 Lederman RP, Lederman E, Work BA, McCann DS. The relationship of maternal anxiety, plasma catecholamines, and plasma cortisol to progress in labor. *Am J Obstet Gynecol* 1978;**132**:495-500.
- 10 Barton MD, Killam AP, Meschia G. Response of ovine uterine blood flow to epinephrine and norepinephrine. *Proc Soc Exp Biol Med* 1974;**145**:966-1003.
- 11 Adamsons K, Mueller-Heubach E, Meyers RE. Production of fetal asphyxia in the rhesus monkey by administration of catecholamines to the mother. *Am J Obstet Gynecol* 1971;**109**:248-62.

(Accepted 25 June 1986)

# Sleepwalking as a symptom of bulimia

WAGUIH R GUIRGUIS

Bulimia is an eating disorder that has been described only recently.<sup>1</sup> Although most of the symptoms are now well known and widely documented,<sup>2</sup> bulimia is still difficult to detect.<sup>3</sup> Firstly, patients do not readily admit to having an eating problem because they are ashamed and disgusted by their condition; secondly, secrecy is one of the features of bulimia; and, thirdly, some patients and doctors are still unaware that bulimia is an illness as body weight, shape, and menstruation can all be normal, even in very sick women. Early detection and treatment, however, are essential because bulimia is a potentially fatal but readily treatable condition.

This report describes a severe case of bulimia that occurred in a disguised form that has not been previously reported.

## Case report

A 32 year old divorced woman was referred to a psychiatric outpatient clinic by her general practitioner for insomnia, which she had had for more than a year and for which hypnotic treatment had been ineffective. She said that on "waking" at night she felt confused and began to sleepwalk. She had

put on an excessive amount of weight and was referred to a dietitian. During a recent holiday her insomnia, interestingly, disappeared.

She was given mianserin, but she abandoned this after a week because it made her sleepy only during the day. The patient denied having emotional, work, or marital problems that could have accounted for her state. When a full history was taken, particularly of her eating habits, the real nature of her condition started to unfold. The patient had always been conscious of her body weight and shape and very sensitive to any changes in them. She hated her body, particularly her lower half. She loved food, however, and was a good cook and hostess but was frightened of gaining weight. Consequently, she was always on some form of slimming diet, and her body weight fluctuated widely and quickly. At the time of interview she was on a special diet which gave her no more than 4.2 MJ/day. She had had a very strict family upbringing and had attended a girls' convent school. She had been fat as a child, teased by other girls, and blamed by her mother for eating too many sweets. She never looked at her body, was always ashamed of it, and had often fantasised about chopping off parts of her hips and thighs with a carving knife.

She said: "The funny thing is that I can control my diet all day. I can even go without food at all, but wake up at night, every night, three or four times, sometimes more, walk downstairs, and eat anything I can find. It all seems like a dream but I can't stop or do anything about it. I am completely out of control; I don't even know why or how I stop or how I go back to sleep. A few hours later I wake up again and repeat the same thing... the mess next morning is unbelievable, the empty boxes and food wrappers, the empty fridge, and the larder, . . . a disgrace, I feel ashamed and I hate myself."

She denied, however, feeling any guilt, but admitted to feeling frightened of putting on weight. When asked how she coped with the fear of putting on weight she said: "I never felt sick or made myself sick... I was often tempted though I never used laxatives, but I starve myself next day and spend hours on the bike trying to stop the calories from going into my legs and hips."

Her periods were regular, and she was taking the contraceptive pill.

St Clement's Hospital, Ipswich IP3 8LS

WAGUIH R GUIRGUIS, MRCPsych, consultant psychiatrist. Also honorary lecturer, St George's Hospital Medical School, London

Although she was living with a common law husband, she never enjoyed sex with him, nor had she done so with her ex-husband. She always felt that sex was wrong and was so ashamed of her body that she never relaxed enough during lovemaking to enjoy it and she never experienced an orgasm.

As she presented with most of the diagnostic features of bulimia she was treated by a modified version<sup>4</sup> of the outpatient treatment method originally described by Lacey in 1983.<sup>5</sup> She responded very well to this treatment with an immediate drop in both the number of awakenings and binges in the first week (table). The size of the binges also dropped with a consistent shift

Number of awakenings and binges during 10 weeks

Weeks of treatment	No of nightly awakenings per week	No of binges per week
Before treatment	22	20
1	20	20
2	5	5
3	2	2
4	2	2
5	2	2
6	3	3
7	3	2
8	4	3
9	3	3
10	3	3
6 months after treatment	1	1

from huge to tiny. Three days after the start of treatment she reported her first night of unbroken sleep in months. The patient was followed up six months later and was found to be maintaining the same improved state, with further improvement in body image, self esteem, and confidence. She was less obsessed by food, less conscious of her body weight or shape, enjoying

sex, and fully orgasmic. She was sleeping very well without drug medication and had stopped her nightly raids on the kitchen.

## Discussion

Overeating and sleep disorders are closely connected as the hypothalamic centres for both eating and sleeping are adjacent. It is not surprising, therefore, that bulimia is often related to a sleep disorder, but an association with sleepwalking has not been described before. Interestingly the patient did not feel guilty after a binge, as most patients with bulimia do, possibly because she thought that the binges were out of her control as she was asleep and could not, therefore, be responsible for them.

In conclusion, patients who sleepwalk and indulge in binges in a state of semiconsciousness and then partially forget the incident may be suffering from a disguised form of bulimia. Awareness of such a possibility and detailed history taking, particularly of eating habits, could lead to the early diagnosis and treatment of some cases of bulimia that would otherwise go undetected.

## References

- 1 Russell GFM. Bulimia nervosa: an ominous variant of anorexia nervosa. *Psychol Med* 1979;9:429-48.
- 2 American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 3rd ed. Washington, DC: American Psychiatric Association, 1980.
- 3 Fairburn CG, Cooper PJ. Self-induced vomiting and bulimia nervosa: an undetected problem. *Br Med J* 1982;284:1153-5.
- 4 Guirguis WR. Bulimia: the new epidemic. *Postgraduate Doctor Middle East* 1986;9:20-8.
- 5 Lacey JH. Bulimia nervosa, binge eating and psychogenic vomiting: a controlled treatment study and long term outcome. *Br Med J* 1983;286:1609-13.

(Accepted 25 June 1986)

# Intermittent hypoxia in patients with unexplained polycythaemia

J C MOORE-GILLON, D F TREACHER, E J GAMINARA, T C PEARSON, I R CAMERON

## Abstract

The aetiology of polycythaemia is unclear in up to 30% of patients. Twenty patients with unexplained polycythaemia were investigated to see whether they had an intermittent hypoxic stimulus to erythropoiesis that was undetected by conventional investigations for hypoxic secondary polycythaemia. Overnight polygraphic sleep studies showed that five patients had prolonged nocturnal hypoxaemia. Their arterial oxygen saturation was below 92%, the level at which appreciable hypoxic stimulation of erythropoiesis occurs, for 26-68% of the time for which they were studied.

Considerable evidence is accumulating that intermittent hypoxia is a potent stimulus to erythropoiesis, and clinicians should consider the possibility of nocturnal hypoxia in patients with unexplained polycythaemia. Appropriate investigation will

lead to the correct diagnosis of polycythaemia secondary to hypoxia in some cases previously regarded as idiopathic, and treatment may then be planned accordingly.

## Introduction

Absolute polycythaemia may be due to a myeloproliferative disorder (primary proliferative polycythaemia) or secondary to chronic hypoxia, renal lesions, or one of several conditions occasionally associated with increased erythropoiesis.<sup>1</sup> Initial investigations show the underlying cause in about 70% of patients; of the remaining 30% of patients, about one third will later show unequivocal primary proliferative polycythaemia<sup>2</sup> or a previously undetected cause of secondary polycythaemia. This leaves a considerable proportion of patients with an increased red cell mass in whom the aetiology of the condition remains obscure.

Studies of red cell mass in patients with differing degrees of hypoxaemia suggest that there is little or no hypoxic stimulation of erythropoiesis until arterial oxygen saturation is less than 92%,<sup>3,4</sup> and saturations above this value are thus held by most clinicians to exclude hypoxic secondary polycythaemia. Measurements of arterial oxygen saturation are conventionally carried out when the patient is awake, but hypoxaemia during sleep is now well recognised<sup>5,6</sup> and animal studies suggest that intermittent hypoxia is a potent stimulus to erythropoiesis.<sup>7,8</sup> Furthermore, erythropoietin concentrations are increased in man after only a few hours of hypoxia.<sup>9</sup> These observations led us to propose that unexplained polycythaemia in

Departments of Medicine and Haematology, United Medical and Dental Schools of Guy's and St Thomas's Hospitals, St Thomas's Hospital, London SE1 7EH

J C MOORE-GILLON, MA, MRCP, lecturer, department of medicine  
D F TREACHER, MA, MRCP, research registrar, department of medicine  
E J GAMINARA, MRCP, MRCPATH, senior registrar, department of haematology  
T C PEARSON, MD, MRCPATH, reader, department of haematology  
I R CAMERON, DM, FRCP, professor of medicine

Correspondence to: Dr J C Moore-Gillon, London Chest Hospital, London E2 9JS.