

Claudio Gentili
Patrizia Panicucci
Mario Guazzelli

Psychiatric comorbidity and chronicisation in primary headache

Published online: 20 July 2005

C. Gentili • P. Panicucci • M. Guazzelli (✉)
Department of Psychiatry, Neurobiology,
Pharmacology and Biotechnologies,
University of Pisa Medical School,
Via Roma 67, I-56126 Pisa, Italy
e-mail: m.guazzelli@psico.med.unipi.it
Tel.: +39-050-992658
Fax: +39-050-21581

Abstract The frequent association between primary headaches and psychiatric disorders is consistently reported in the literature. There is increasing evidence that a bi-directional relationship links these somatic conditions to psychopathological events. Prospective studies show that several psychiatric disorders are severe risk factors for both the onset and chronicisation of primary headache, and for a long time it has been suspected that headache triggers psychiatric disorders, most-

ly of affective nature, and affects both their course and outcome. Researchers are actively involved in investigating the biological basis of such a relationship while clinicians still need to strengthen their interest in psychiatric comorbidity of their primary headache patients to improve clinical outcome and to prevent chronic evolutions.

Key words Primary headache • Psychiatric comorbidity • Depression • Clinical outcome

Epidemiological research has systematically documented a strong association between primary headaches and psychiatric disorders [1], well known to clinicians for more than a century.

In 1895, likely for the first time, Living described the occurrence of depressive mood, irritability, anxiety, memory and attention deficit in patients with chronic headache, and in 1937 Wolf defined the “migraine personality”, looking at anxious and depressive traits frequently found in subjects with chronic migraine [2]. More recently several studies highlighted that patients with a psychiatric disorder seem to show more frequent and severe primary headache and vice-versa that psychiatric comorbidity is increased in headache patients, thus suggesting a bi-directional relationship between some disorders of the mind and those pathologies of the brain [3, 4] (Table 1).

The psychometric approach, underlying most of contemporary North American psychiatry, considered head-

ache as a symptom of mood and anxiety disorders and the DSM nosography within somatoform disorders seems to look at headache, as any other kind of pain, as the only manifestation of a psychiatric syndrome.

As an example, the most widely used clinical scale for Depression, the Hamilton Rating Scale, includes headache as a constitutive element of two items, while in the Hamilton Rating Scale for Anxiety headache is included in one of the items and there are findings that claim depression to affect onset and chronicisation of primary headache. On the other hand, not surprisingly, Sheftel et al. [5], looking at clinical manifestations associated to daily chronic headache, most often find anhedonia, decreased concentration, decreased libido, decreased energy and sleep disorders, i.e., some of the core depressive elements. Available data allow us to hypothesise that headache is not just a symptom of depression, but that headache and several mood and anxiety disorders are

Table 1 Prevalence of psychiatric disorders in a sample of an Italian population with migraine and tension-type headache [1, 3]

	Patients, %		
	Tension-type headache		Migraine (without aura)
	Episodic	Chronic	
Anxiety disorders	31	21	19
Depression	12	17	8
Somatization disorders	5	10	6
Anxiety disorders and depression	8	15	8
Anxiety disorders and somatization disorders	7	13	8
Anxiety disorders, depression and somatization disorders	4	7	3
Depression and somatization disorders	3	1	3
Without psychiatric comorbidity	30	16	44

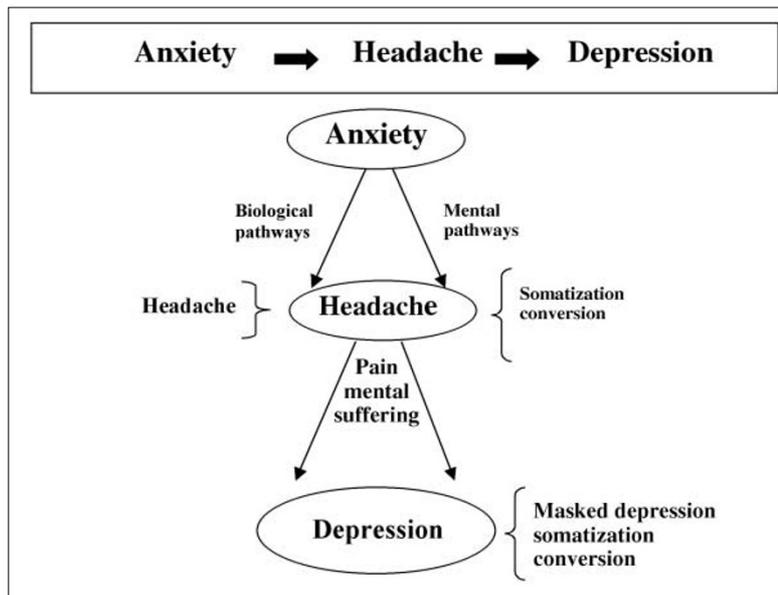
clinical entities that share some pathophysiological bases. In this view a two-way relationship could link the conditions, primary headaches and psychopathology, with a mutual vulnerability between them. Longitudinal studies on patients with headache show that severity of the headache is positively correlated with the risk of developing mood or anxiety disorder [6]. Breslau et al. [7] also have shown that women with a higher score on the subscale for neuroticism of the EPQ inventory had a higher risk for migraine after a 5-year follow-up. These data suggest that abnormal personality traits can predict the onset and the severity of headache.

Merikangas et al. [8], in a prospective study, assumed that migraine follows anxiety within several years, while it precedes by about 4 years the onset of depression. All these findings can support a kind of model in

which anxiety, through mental processes such as somatization and conversion, together with molecular brain mechanisms still ill-defined, induces or facilitates the onset of a primary headache, thus triggering a psychoneurobiological cascade toward a clear mood disorder such as depression (Fig. 1).

The opposite pathway can be also imagined, i.e., that mental suffering can be transformed into somatic pain: the concepts of masked depression in French psychiatry and of depressive equivalent in Spanish psychiatry go in this direction. The false belief of somatic illness, which sustains hypochondrias, is the extreme transformation of mental suffering, which paradoxically is itself a mental disorder.

This point of view is not novel in psychiatry if we consider that from Grisinger to Black-Munro [9] mod-

**Fig. 1** Sequence of events that lead from anxiety to the development of headache and from headache to depression

ern psychiatry consistently considered pain and mental suffering as different sides of the same dimension. Not to mention Freud who theorizes the possibility for anxiety to transform into almost every somatic manifestation.

Neuroscience studies and more recently results of experimental investigations by means of the *in vivo* brain functional exploration methodologies such as positron emission tomography and functional magnetic resonance showed that pain and mental suffering, such as depression, are related to the same brain regions (anterior cingulate, amygdala, orbito-frontal cortex and temporal lobe [10]). These data indicate that even at the biological level pain and mental suffering share a common basis.

Moreover, preliminary data point out that depression and other psychiatric conditions affect the outcome of primary headache, particularly increasing the risk of chronic evolution [11].

In conclusion, primary headache and psychiatric comorbidity can be thought as different points of a neuropsychobiological loop in which psychological components such as stressful life events and biological components such as pain mutually interact, one facilitating the onset of the other [12]. According to this model, psychiatric comorbidity is not only associated with higher vulnerability but probably plays a significant role in the development of drug resistance and chronicisation of primary headache, or vice versa, this neurological condition facilitates the psychiatric comorbidity.

References

1. Puca F, and the Italian Collaborative Group for the Study of Psychopathological Factors in Primary Headaches (2000) Psychological and social stressors and psychiatric comorbidity in patients with migraine without aura from headache centers in Italy a comparison with tension-type. *J Headache Pain* 1:17–32
2. Catarci T, Clifford RF (1992) Migraine and heredity. *Pathol Biol* 40:284–286
3. Puca F, and the Italian Collaborative Group for the Study of Psychopathological Factors in Primary Headaches (1999) Psychiatric comorbidity and psychosocial stress in patients with tension-type headache from headache centers in Italy. *Cephalalgia* 19:159–164
4. Breslau N, Davis GC, Andresky P (1991) Migraine, psychiatric disorders, and suicide attempts: an epidemiologic study of young adults. *Psychiatry Res* 37:11–23
5. Sheftel FD, Atlas SJ (2002) Migraine and psychiatric comorbidity: from theory and hypotheses to clinical application. *Headache* 42:934–944
6. Zwart JA, Dyb G, Hagen K et al (2003) Depression and anxiety disorders associated with headache frequency. The Nord-Trøndelag Health Study. *Eur J Neurol* 10:147–152
7. Breslau N, Andresky P (1995) Migraine, personality and psychiatric comorbidity. *Headache* 35:382–386
8. Merikangas KR, Merikangas JR, Angst J (1993) Headache syndromes and psychiatric disorders: association and family transmission. *J Psychiatr Res* 2:197–210
9. Blackburn-Munro G (2004) Hypothalamo-pituitary-adrenal axis dysfunction as a contributory factor to chronic pain and depression. *Curr Pain Headache Rep* 8:116–124
10. Chen AC (2001) New perspectives in EEG/MEG brain mapping and PET/fMRI neuroimaging of human pain. *Int J Psychophysiol* 42:147–159
11. Hung CI, Wang SJ, Hsu KH et al (2005) Risk factors associated with migraine or chronic daily headache in out-patients with major depressive disorder. *Acta Psychiatr Scand* 111:310–315
12. Pietrini P, Guazzelli M (1997) Life events in the course of chronic diseases: a psychological myth or a psycho-neuro-biochemical loop? *Clin Exp Rheumatol* 15:125–128