

**What factors of physical and mental health are antecedents and consequents in the development of the Marchiafava-Bignami Disease?**

**1. INTRODUCTION**

The Marchiafava - Bignami disease (MBD) is a rare condition that was first described in 1903. It often causes demyelination or necrosis in the corpus callosum symmetrically (Bano et al. 2009; Dong, Bai, & Nao, 2018; Mishra, Bhate, Gupta, Sankhe, & Karnik, 2016; Namekawa, Nakamura, & Nakano, 2013). It mainly affects alcoholic men with an average age of 46 years (Gramaglia et al. 2016). Cases have also been found in non-alcoholic subjects who are usually younger, often women (Fiacco, Barbato, Pecoraro, & Maggio, 2017; Hillbom et al. 2013; Soto, Rangel, & Rayo, 2010).

Brion et al. (1977) introduced a classification for MBD based on a categorization of the disease: acute (convulsive crisis, apathy, apraxia, hemiparesis, ataxia, alterations of consciousness ... and death in many patients), subacute (mental confusion, memory deficit, symptoms of interhemispheric disconnection, dysarthria, impaired gait ...) and chronic (mild dementia that progresses evolutionarily).

The diagnosis of MBD is made based on the clinical characteristics, physical examination and the findings in the MR images (Gramaglia et al. 2016; Nalini, Kovoov, Dawn, & Kallur, 2009; Mishra et al. 2016; Sehgal, Kesav, Modi, & Ahuja, 2013; Tekwani, 2016). MBD is a continuous degenerative process that apparently does not show cure. In some cases symptomatic improvement has been observed, so that rehabilitation in these patients is fundamental and is based on the improvement of motor and psychic disorders.

**2. OBJECTIVES**

**2.1. General**

1. Identify through a systematic review, what factors influence the development of the MBD.

**2.2. Specific**

1. Identify through a systematic review, what psychological or mental health-related factors influence or could influence the development of the MBD.
2. Identify through a systematic review, what consequences are or could be related to mental health the patient presents after the development of the MBD.
3. Identify through a systematic review, what treatments are applied to patients diagnosed with the MBD.

**3. METHOD**

First, a search was made in the Scopus and PubMed databases from 2008 to 2018, for all those documents that contain the word "Marchiavafa-Bignami" in the title, summary or keywords. All documents published in European languages were considered. After carrying out this search, 169 documents were obtained in the Scopus database and 95 documents in the PubMed database, by means of which a total of 264 documents were obtained.

As inclusion criteria were considered those research studies that deal with the Marchiafava-Bignami disease, which include some psychological factor as well as consequent as antecedent of the development of the disease. In addition, those who present the description of some case (women or men, diagnosed with this disease), and those who make a description of the disease were also included. Also, those articles published in the last ten years have been selected. And the exclusion criteria those articles do not include the inclusion factors.

Secondly, we proceeded to the elimination of those duplicate documents, through the Mendeley program, where all the documents obtained from the search of the two databases were downloaded, and a total of 180

documents were obtained. Afterwards, all the documents were downloaded and an evaluation of the documents was carried out taking into account aspects such as the title of the document, the summary, the method and the type of document, mainly, based on these aspects, a total of 97, selecting 83 scientific articles.

Third, those 83 articles were translated into Spanish and evaluated by making a reading of the summary, the case (if any) and the conclusions of the summary, and taking into account whether the article answered any of the questions or not. Likewise, a total of 43 articles were selected and 40 and thoroughly evaluated by carrying out an exhaustive reading of them,. The total number of articles selected and that fulfilled all the inclusion criteria, for the realization of the review were 22.

#### 4. RESULTS

Regarding the first objective and after carrying out the review, it can be affirmed that the MBD has an unknown etiology (Aggunlu, Oner, Kocer, & Akpek, 2008; Alghamdi, Seddeq, Algahtani, & Shirah, 2017; Bano, Mehra, Yadav, & Chaudhary, 2009; Gramaglia et al. 2016; Yadala & Luo, 2013), so the exact mechanism that develops the disease is still not known exactly. Chronic alcoholism, malnutrition and deficiency of B vitamins can be identified (Alghamdi et al. 2017; Bano et al. 2009; Bilgiç, Arslan, Bulut, Bayram, & Hizli, 2011; Cui et al. 2015; Hillbom et al. 2013; Mishra et al. 2016; Pansari et al. 2017; Soto et al. 2010; Suzuki, Oishi, Ogawa, & Kamei, 2012; Xuehan, Zhiyu, Wang, & Chen, 2017; Yadala et al. 2013), as factors that researchers identify as having an influence on the development of the disease, which is why alcohol abuse (and that this behavior is unleashed) as a psychological factor or related to mental health that could influence, according to the researchers, in the development of the MBD. It is an important factor to take into account, since most of those affected by this disease experienced abuse in alcohol consumption.

Regarding the second objective, it was identified that the consequences of this disease related to physical health are very diverse (Bilgiç et al. 2011; Nalini et al. 2009) in the reviewed cases. It was found that some patients could experience a complete recovery (Cui et al. 2015; Hillbom et al. 2013; Sehgal et al. 2013) until they died, since early diagnosis and immediate treatment of the disease greatly influence it (Bano et al. 2009; Sehgal et al. 2013; Wenz, Eisele, Artemis, Förster, & Brockmann, 2014). The consequences derived from the disease will depend on the symptomatology that the patient has presented since the clinical picture is very variable, as well as depending on the type of lesions presented by the patient, that is, if they are located only at the corpus callosum or there are affected cortical areas (Namekawa et al. 2013; Xuehan et al. 2017). The symptoms of hemispheric and interhemispheric disconnection, dysarthria, apraxic gait, memory deterioration, disorientation... are frequent (Bano et al. 2009; Cui et al. 2015; Hillbom et al. 2013; Jorge, Gold, Sternman, Prabhakaran, & Yelon, 2015; Nalini et al. 2009; Wenz et al. 2014). Likewise, the reviewed articles lack information about the consequences related to mental health, since in the majority of cases the patient's long-term follow-up is not followed or it does not appear.

Finally, the third specific objective of the systematic review was to identify which physical and psychological treatments were applied to patients diagnosed with the MBD (Alghamdi et al. 2017; Wenz et al. 2014). There is no specific treatment for MBD, so they are used as administrators for Wernicke, Korsakoff or for alcoholism (Gramaglia et al. 2016; Tekwani, 2016). Emphasize that the first step of treatment for the disease is strict abstinence from alcohol (Mehrzad & Ho, 2016) with appropriate counseling and supportive therapies (Mishra et al. 2016). Next, thiamine, vitamin B complexes (mainly B12) and folic acid that can accelerate clinical recovery are administered (Aggunlu et al. 2008; Bano et al. 2009; Gramaglia et al. 2016; Hillbom et al. 2013; Mehrzad & Ho, 2016; Mishra et al. 2016; Pansari et al. 2017; Tekwani, 2016; Wenz et al. 2014). Others indicate that high-dose steroids are also useful for the recovery of these patients (Mishra et al. 2016; Pansari et al. 2017; Suzuki et al. 2012; Tekwani, 2016; Wenz et al. 2014).

#### 5. CONCLUSIONS

**What psychological or mental health-related factors are or could be antecedents in the development of the Marchiafava-Bignami disease?** When MBD has an unknown etiology, it cannot be determined exactly what factors are the causes. However, many researchers identify the chronic consumption of alcohol as one of the factors most involved in the development of this disease, since most patients diagnosed with MBD had a history of chronic alcohol consumption, although it also he does not know for sure how alcoholism influences the disease.

**What factors related to physical or mental health are or could be consistent in the development of the Marchiafava-Bignami disease?** Mainly, the identified consequences of this disease are physical and very variable, since they range from complete recovery to death. They depend a lot on whether the lesions affect only the corpus callosum or there are also cortical areas affected. The most frequent physical symptoms are interhemispheric

disconnection, dysarthria, apraxic gait, memory deterioration, disorientation ... Likewise, no consequent related to mental health has been identified, because they were not included in the reviewed articles.

Regarding the limitations, it should be noted that of the articles reviewed based on the inclusion criteria previously mentioned, none refer to the patient's environment and in a few articles the patient's situation is named after discharge after the development of the MBD. Highlight the lack of scientific articles that speak of mental health professionals and the scarcity of reviews on this subject. Therefore, one of my suggestions would be to follow the patient once he has left hospital admission, since it would be very likely to find that most of them have some mental pathology given the limitations that this disease produces and to include it in the articles. In addition, to make these patients a psychological evaluation besides physical evaluation.

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