

ABOUT THE MISDIAGNOSTICS OF MAGNESIUM DEFICIENCY

Selbsthilfeorganisation



Mineralimbancen

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We demonstrate a calculation to estimate the number of patients, who are not correctly diagnosed, as a function of the critical value of the Mg^{2+} serum concentration (0,8 or 0,75 or 0,70 mMol/l). We have taken the data of v.Ehrlich¹ (1997), who had diagnosed 9,4% patients among 3894 in total which had symptoms belonging to a clinically relevant magnesium deficiency syndrome and showed less than 0.8 mMol/l (MMS²). When patients with more than only 0,7 mM Mg are considered as normomagnesemic, more than 329 magnesium-deficiency patients would be erroneously declared as normomagnesemic. In these cases, unfortunately, no magnesium therapy would be started.

Suspected figure for MDS without clinically prominent symptoms

proven frequency of erroneous diagnosis 90%	proven frequency of erroneous diagnosis 50%	no error in the chosen sample
found	found	found
using a critical concentration of Mg^{2+} in the serum as		
0.7 mMol/l	0.75 mMol/l	0.8 mMol/l
37 von 366*6*	183 von 366**	366 von 366***

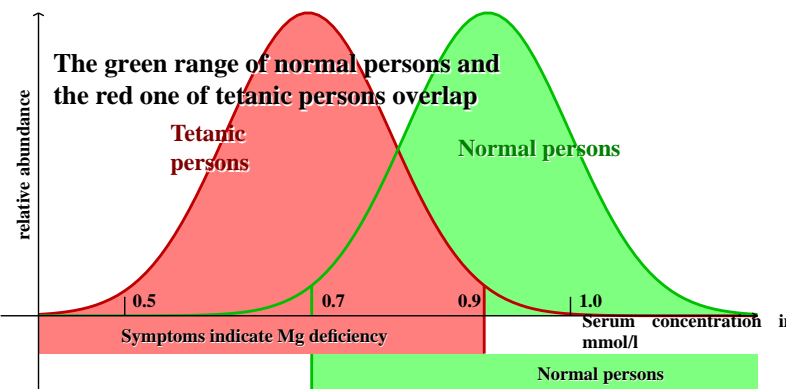
The experience of our SHO shows that the reason why patients with magnesium deficiency symptoms do not get magnesium therapy is the bad choice of the lower confidence limit for the sound population as a critical value for patients with symptoms. This lower limit is clearly too low for serving as critical value. Therefore, the prevalence and importance of this disease is not taken into consideration sufficiently.

It is a famous error in statistics to use the confidence limits of the normal population as exclusion limits for the affected (see the diagram below).

As a further problem in praxi, at least in germany, the magnesium serum value is not even determined in most cases. The result is that magnesium is up to now not yet used as a first choice therapy, although it is causal and free of side effects.

Our conclusions are

- When there is a chance for causal therapy - then this therapy has to be the first choice.
- When magnesium deficiency symptoms are diagnosed, the magnesium serum value has to be checked.
- Patients with Mg serum values lower than 0,9 mM have to be involved as suspected Mg-deficient patients.
- When magnesium deficiency symptoms are diagnosed, the magnesium substitution as well as therapy has to be started with more than 600 mg Mg per day.



In 2000 we estimated the distribution of the serum value for affected patients much too conservative. As the data of v.Ehrlich show, the mean value of the left distribution is larger than 0.75 mMol/l, and only 10% of the red area lie left of 0.7 mMol/l.

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About the misdiagnostics of Magnesium deficiency

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We demonstrate a calculation to estimate the number of patients, who are not correctly diagnosed, as a function of the critical value of the Mg^{2+} serum concentration (0,8 or 0,75 or 0,70 mMol/l). We have taken the data of v.Ehrlich¹ (1997), who had diagnosed 9,4% patients among 3894 in total which had symptoms belonging to a clinically relevant magnesium deficiency syndrome and showed less than 0.8 mMol/l (MMS²). When patients with more than only 0,7 mM Mg are considered as normomagnesemic, more than 329 magnesium-deficiency patients would be erroneously declared as normomagnesemic. In these cases, unfortunately, no magnesium therapy would be started.

The experience of our SHO shows that the reason why patients with magnesium deficiency symptoms do not get magnesium therapy is the bad choice of the lower confidence limit for the sound population as a critical value for patients with symptoms. This lower limit is clearly too low for serving as critical value. Therefore, the prevalence and importance of this disease is not taken into consideration sufficiently.

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Our conclusions are

- When there is a chance for causal therapy - then this therapy has to be the first choice.
- When magnesium deficiency symptoms are diagnosed, the magnesium serum value has to be checked.
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Supplementary remarks

1. It is our based on experience conviction that many patients with so-called exclusion diagnoses (as attention deficit hyperactivity disorder (ADHD) or chronic fatigue syndrome (CFS), for instance) would improve their symptoms through Magnesium therapy. All patients with exclusion diagnoses should be considered as potentially Mg-deficient. Consequently, the Mg serum value of these patients should be determined. In the cases with Mg serum values lower than 0,9 mM it is necessary to try a Magnesium substitution or therapy.

2. The same holds for patients with diagnoses of depression, epilepsy, diabetes mellitus, tremor, M. Parkinson, arrhythmias, circulatory disturbances (stroke, cardiac infarction, arteriosclerosis), hypertension, migraine, cluster headache, crampi, neuro-vegetative disorders, abdominal pain, osteoporosis, asthma, stress dependent disorders, tinnitus, ataxia, confusion, preeclampsia, weakness.

3. Our recommendation is to generallyly apply a magnesium serum value of 0,9 mmol/l as the lower reference limit, when corresponding symptoms or diseases stated. In this case, Magnesium has to be used as a first choice therapy.

4. In *any* decision between two alternatives (here: normal person and patient) *two* distinct errors are present: First, a person without magnesium deficiency can erroneously be decided to have a deficiency (error of the first kind). Second, a patient with deficiency can erroneously be declared normal and remain undetected (error of the second kind). The decision procedure decides about the value of both errors, and can be chosen to fix one of the two. Usually (because it can be determined by calculation), the error of the first kind is chosen to be 0.05 or 0.01. However, *the smaller the error of the first kind is chosen, the larger the error of the second kind will necessarily be*. In most cases – and our case belongs to these – the error that implies the higher risk or the higher costs must be made small. In our case, this is the error of the second kind. The decision through use of the serum concentration must respect the distribution of this value for *affected patients*, and must not use the distribution for normal persons.

5. Hence, the critical value must be chosen as 0.9 mmol/l and not as 0.7 mmol/l. Magnesium must be substituted for patients with

lower values. The practitioner who uses 0.7 mmol/l admits an error of the second kind as large as 90%!

6. Diagnosis of the Magnesium Deficiency Syndrom (MDS):

When symptoms of MDS are found and in addition the serum value falls below the critical value of 0,90 mmol/L Mg²⁺, it is compulsory to apply Magnesium as causal therapy. Because Mg has no side effects, it is first choice!

7. Diseases,

- for which the causes are not identified,

- the symptoms of which belong to the MDS,

are to be analysed with respect to the Mg serum value! Again, when the serum value falls below the critical value of 0,90 mmol/L Mg²⁺, Magnesium therapy must be tried.

These diseases include for instance:

- ADHS (Attention deficit and hyperactivity syndrom)

- Chronic Fatigue Syndrom

- Multiple Chemical Sensitivity

8. Furthermore, it is postulated, by using these criteria, many patients with so-called exclusion diagnoses as attention deficit hyperactivity disorder (ADHD) or chronic fatigue syndrome (CFS) would improve their symptoms. Therefore, all patients with exclusion diagnoses should be considered as potentially Mg-deficient. Consequently the Mg serum value of patients with so-called exclusion diagnoses should be estimated. In the cases with Mg serum values lower than 0,9 mM a substitution or therapy should be proved.

The same is valid for patients with diagnoses of depression, epilepsy, diabetes mellitus, tremor, M. Parkinson, arrhythmias, circulatory disturbances (stroke, cardiac infarction, atherosclerosis), hypertension, migraine, cluster headache, crampi, neuro-vegetative disorders, abdominal pain, osteoporosis, asthma, stress dependent disorders, tinnitus, ataxia, confusion, preeclampsia, weakness.

Our recommendation is generally to apply a magnesium serum value of 0,9 mmol/l as the lower reference limit, if corresponding symptoms or disease are existing. Than, Magnesium has to be used as a first choice therapy.

Die Literaturzitate schicke ich Dir, sobald der Text klar ist. Ich wrde Verweise auf Vichy und Zaragoza gern anbringen!

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