



## **This is why Mean Cell Volume (MCV) can never be relied on to rule out B12 Deficiency**

### **1983 Organic psychosis without anaemia or spinal cord symptoms in patients with vitamin B12 deficiency.**

"They emphasise that psychiatric manifestations may be the first symptoms of vitamin B12 deficiency and thus antedate anaemia and spinal cord disease."

[www.ncbi.nlm.nih.gov/pubmed/6849439](http://www.ncbi.nlm.nih.gov/pubmed/6849439)

### **1985 Masked vitamin B12 and folate deficiency in the elderly.**

"There is a case for routine screening of the elderly for vitamin B12 and folate deficiency irrespective of the MCV."

[www.ncbi.nlm.nih.gov/m/pubmed/3870687/?i=6&from=/9292759/related](http://www.ncbi.nlm.nih.gov/m/pubmed/3870687/?i=6&from=/9292759/related)

### **1988 Neuropsychiatric disorders caused by cobalamin deficiency in the absence of anaemia or macrocytosis.**

"Among 141 consecutive patients with neuro-psychiatric abnormalities due to cobalamin deficiency, we found that 40 (28 percent) had no anemia or macrocytosis"

[www.ncbi.nlm.nih.gov/pubmed/3374544](http://www.ncbi.nlm.nih.gov/pubmed/3374544)

### **1991. Neurologic aspects of cobalamin deficiency.**

".....and in 31 (23.0%), the mean corpuscular volume was normal."

[www.ncbi.nlm.nih.gov/pubmed/1648656](http://www.ncbi.nlm.nih.gov/pubmed/1648656)

### **1994. Sensitivity of serum methylmalonic acid and total homocysteine determinations for diagnosing cobalamin and folate deficiencies.**

"Most of the cobalamin-deficient patients had underlying pernicious anaemia..... Hematocrits were normal in 28% and mean cell volumes in 17%."

[www.ncbi.nlm.nih.gov/pubmed/8154512](http://www.ncbi.nlm.nih.gov/pubmed/8154512)

### **1995. Neurological complications of acquired cobalamin deficiency: clinical aspects.**

"Pharmacological doses of folic acid reverse the haematological abnormalities (eg a MCV) of Cbl deficiency. This may allow neuropathy to develop or progress and make recognition of deficiency more difficult. "

[www.ncbi.nlm.nih.gov/pubmed/8534966?dopt=Abstract](http://www.ncbi.nlm.nih.gov/pubmed/8534966?dopt=Abstract)

### **1997 Prevalence and haemopoietic effects of low serum vitamin B12 levels in geriatric medical patients.**

"..... only thirteen (23%) of the fifty-six patients with a low vitamin B12 had an MCV > or = 100 fl."

[www.ncbi.nlm.nih.gov/m/pubmed/9292759/?i=8&from=raised%20mcv%20AND%20B12](http://www.ncbi.nlm.nih.gov/m/pubmed/9292759/?i=8&from=raised%20mcv%20AND%20B12)

### **2003 Gastric atrophy, metaplasia, and dysplasia: a clinical perspective.**

"Patients may have advanced neuropsychiatric manifestations of cobalamin deficiency and yet not be anaemic, have a normal blood smear, and even have serum cobalamin levels in the normal range."

[www.ncbi.nlm.nih.gov/m/pubmed/12702963/](http://www.ncbi.nlm.nih.gov/m/pubmed/12702963/)

### **2012. M.C.V. should not be the only criteria to order vitamin B12 for anaemia under evaluation**

"There is no correlation between vitamin B12 levels and MCV in majority of the cases.

[www.scirp.org/journal/PaperInformation.aspx?paperID=25072#.UvLjH8gGSM](http://www.scirp.org/journal/PaperInformation.aspx?paperID=25072#.UvLjH8gGSM)

### **2012 Vitamin B12 deficiency in India: mean corpuscular volume is an unreliable screening parameter.**

In a cohort of 94 patients with low Serum B12, only 26 patients (27%) had raised MCV

[www.ncbi.nlm.nih.gov/pubmed/23998863](http://www.ncbi.nlm.nih.gov/pubmed/23998863)

### **2012. Misdiagnosed vitamin B12 deficiency a challenge to be confronted by use of modern screening markers**

...."but its absence does not rule out B12 deficiency and it is not a specific marker as using it solely would miss 84 percent cases. Its normal range is 80-96 fl.20 MCV can be within normal range despite B12 deficiency specially with concomitant iron deficiency,...."

[www.jpma.org.pk/full\\_article\\_text.php?article\\_id=3808](http://www.jpma.org.pk/full_article_text.php?article_id=3808)

### **2013 Low Vitamin B12 Levels among Newly-Arrived Refugees from Bhutan, Iran and Afghanistan: A Multicentre Australian Study**

"Macrocytosis (MCV>95 fL) was reported in 4.6% (7/151) of cases who also had Vitamin B12<150 pmol/L, and 0.9% (7/762) of cases with Vitamin B12 levels ≥ 150 pmol/L (p=0.004), indicating a sensitivity of 4.6% for macrocytosis in detecting Vitamin B12 deficiency"

[www.ncbi.nlm.nih.gov/pmc/articles/PMC3585239/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3585239/)

### **2013 Cobalamin deficiency: clinical picture and radiological findings.**

"Neuropsychiatric symptoms may precede hematologic signs"

[www.ncbi.nlm.nih.gov/pubmed/24248213](http://www.ncbi.nlm.nih.gov/pubmed/24248213)

### **2014 The neurology of folic acid deficiency.**

("In both deficiency states [b12/folate] there is often dissociation between the neuropsychiatric and the hematologic complications.")

[www.ncbi.nlm.nih.gov/pubmed/24365361](http://www.ncbi.nlm.nih.gov/pubmed/24365361)

### **This document showed MCV cut-off used to be lower years ago. (Germany)**

[www.ncbi.nlm.nih.gov/pmc/articles/PMC1073874/pdf/jnpsyc00015-0104a.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1073874/pdf/jnpsyc00015-0104a.pdf)