Micronutrient status and immune function

Reducing illness from COVID-19 in vulnerable populations

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First Name		**Profession**	
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1. Of the factors below associated with higher risk of severe COVID-19 morbidity and mortality, which is/are at greatest risk of undernutrition?

☐ **A** Older age ☐ **B** Male ☐ **C** Comorbidities ☐ **D** A and C

2. An unhealthy diet and lifestyle are associated with low-grade inflammation and increased oxidative stress, which could lead to the development of NCDs and increased risk of infections.

☐ **A** True ☐ **B** False

3. Which statement is false?

☐ **A** Systemic inflammation is a common feature of NCDs and affects COVID-19 patient outcomes
☐ **B** Maintenance of optimal micronutrient status through the consumption of a well-balanced and diverse diet is easily accomplished in the general population

4. Which statement is false? Severely depleted vitamin C status has been associated with:

☐ **A** Enhanced oxidative stress ☐ **B** More severe COVID-19 outcomes
☐ **C** Pneumonia as a more common cause of mortality ☐ **D** B and C

5. Which statement is true? Vitamin C intervention trials have demonstrated:

☐ **A** No reduction in the risk of pneumonia
☐ **B** A highly statistically significant reduction in length of ICU stay and duration of mechanical ventilation
☐ **C** IV administration in septic ARDS patients decreased mortality by 3%
☐ **D** B and C

6. Which statement is false? There is a dose-concentration relationship with vitamin C intake, whereby generally healthy individuals with dietary intake of 200mg/day:

☐ **A** May not benefit from supplementation ☐ **B** May not benefit from supplementation even when ill with infections

7. Below normal vitamin D levels in older males with comorbidities have been strongly associated with a 13-fold increased death rate in COVID-19 infection.

☐ **A** True ☐ **B** False

8. In which of the following immune functions and factors does zinc play a critical role?

☐ **A** Development of innate and adaptive immune cells ☐ **B** Signalling in modulation of inflammatory response
☐ **C** Direct antiviral effects, including against respiratory viruses ☐ **D** All of the above

9. Which statement is false? Zinc deficiency:

☐ **A** Is a serious public health problem worldwide ☐ **B** Shows a five-fold increase in pneumonia mortality in the elderly
☐ **C** Is associated with ageing, immune deficiency and NCDs ☐ **D** All of the above

10. Which statement is true? Poor selenium status is associated with:

☐ **A** Increased C-reactive protein ☐ **B** Decreased numbers of lymphocytes
☐ **C** Viral mutations that cause more severe pathology ☐ **D** All of the above

11. Which statement is false?

☐ **A** Deficient selenium status has been associated with higher COVID-19 pathogenicity and mortality in China
☐ **B** Selenium supplementation in critically ill ARDS patients improves overall survival, duration of mechanical ventilation and ICU stay

12. Deficiencies in which of the following micronutrients are common among the elderly?

☐ **A** Calcium and zinc ☐ **B** Vitamins C and D ☐ **C** Folate ☐ **D** All of the above

13. Complications, length of hospital stay, and mortality are significantly worse in untreated, nutritionally at-risk older or polymorbid inpatients, whereas those provided with nutritional support experience improved quality of life and reduced complications.

☐ **A** True ☐ **B** False

14. Of the following predictors of mortality from influenza, which is amenable to medical intervention?

☐ **A** Malnutrition ☐ **B** Pneumonia ☐ **C** Both of the above ☐ **D** None of the above

15. Which of the following complications are most common in severe COVID-19 infection?

☐ **A** Septic shock ☐ **B** ARDS ☐ **C** Heart failure ☐ **D** All of the above

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