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China with the World: COVID-19 Experts Dialogues

The 4th Talk

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Prof. Zhiyong Peng

Di ec o of De a men of C i ical Ca e Medicine
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A one of he leading ofe ional in C i ical Ca e Medicine in China, P of. Peng ha e en i. e e e ience in clinical e ea ch, ed. ca ion and ac ice , i h hi a ic. la foc. on cell. la me aboli m, e i , clinical ha macolog and d . g de. elo men .

Dr. Ming Zhong

Di ec o of De a men of C i ical Ca e Medicine
Zhong han Ho i al, F. dan Uni. e i , China

D . Zhong c. en clinical e ea ch foc. i he hemod namic moni o in hock , a hogene i and ea men of ARDS, e aco o eal life . o fo e. e e ca diac and e i a o fail. e, clinical n. i ion fo c i icall ill, coag. lo a- h in e i . Hi g o. ndb eaking . ili a ion of o ec i. e. en ila ion in ane he ia fo e o hagec om igni can l a en. a ed o o e a i. e in amma ion of l. ng .

Prof. Pierre Singer

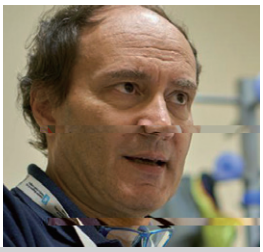
P ofe o of Ane he ia and In en i. e Ca e, Sackle School of Medicine
Di ec o of he Gene al In en i. e Ca e De a men
Rabin Medical Cen e , Beilin on Cam . , Pe ach Tik a, I ael

Di ec o of one of he main efe ence In en i. e Ca e . ni in I ael and Chai man of he E. o ean Socie fo Clinical N. i ion and Me aboli m, P of. Singe i ell ecogni ed in I ael, E. o e and globall fo hi im e i. e e ea ch and academic o folio foc. in C i ical Ca e.

Dr. Enrico Storti

Head of Ane he ia & In en i. e Ca e
Maggio e Ho i al of Lodi , Lodi ASST, I al

Po g ad. a e in In e nal Medicine, Ane he ia and In en i. e Ca e, D . S o i ha . e olid ofe ional ca ee i h a ecial foc. in Clinical Ul a o. nd. He a he e iden of he Wo ld In e ac i. e Ne o k Foc. ed on C i ical Ul aSo. nd (WINFOCUS). No he i gh ing he ba le again Co. id-19 in he f on line of Lomba d , I al .



Prof. Jordi Rello

In en i. i
Leade of a e i and ne. monia e ea ch g o. a heE cellence Ne o k fo Biomedical Re ea ch Cen e in Re i a o Di ea e (CIBERES)
P ofe o of T an la ional Medicine Vall d'Heb on Ho i al Cam . , Ba celona, S ain

A one of he globall ell ecogni ed ofe ional on hi eld and i h in en e e ea ch ac i. i in infec io. di ea e and C i ical Ca e, P of. Rello i one of he e on cond. c ing, coo dina ing and . bli hing cien i c a icle in E. o e ega ding COVID-19 managemen .

Dr. Tomas Lamas

ICU Con . l an
Ega Moni Ho i al, Li bon, Po . gal

D . Lama i a e le ofe ional i h an e en i. e e ea ch o folio and a ion fo In en i. e Ca e and Eme genc medicine. Wi h a g ea e . a ion a na ional and E. o ean le. el and al a looking fo he ne cien i c challenge, he i c. en l ba ed in one of he main . blic ho i al in he me o oli an a ea of Li bon, Po . gal.

Q (Prof. Singer): What do you think about the comorbidities and the age of the patients in the treatment of COVID-19? Is the mortality higher in elderly patients as it is reported from recent papers?

A (Prof. Peng): If he a ien ha como bidi ie , he can be ea il infec ed b COVID-19 and a e likel o become e e e ca e . Rega ding he ea men , I am no a a e of an eci c ea men fo hi kind of a ien .

Q (Prof. Singer): Regarding the organization and protection of the teams, what are your recommendations?

A (Prof. Peng): Fo he e onal o ec ion, im lemen ing ai bo ne eca. ion i c . cial: N95 face ma k , o ec i. e hoe , goggle and face hield hen o king in he ICU. Thi igh o ec ion fo clinical a i c . cial.

Q (Prof. Singer): How many professionals have been infected?

A (Prof. Peng): Mo of he ofe ional e e infec ed a he ea l age beca. e e didn' eali e he an mi ion a o high. Ano he i . e a ha e didn' ha. e eno. gh Pe onal P o ec i. e E . i men (PPE) a he beginning, b. he go. e n men o de ed man com anie ' . ick od. c ion of e . i men . Righ no e. e hing i ok. D. ing he la mon h I didn' e. en hea abo. an ca e of ofe ional infec ed b COVID-19.

A (Prof. Storti): Rega ding he . e ion f om P of. Singe , e , e ha. e highe mo ali among he elde l in l al . O. e e i- ence i limi ed o onl h ee eek and I don' ha. e clea g. e , o lea e don' ake hi a . , h. On he o he hand, e a e a - ing o ee o. nge a ien e. e el ill i h ARDS ha , . nfo . - na el , ha. e o be admi ed in he ICU hile, in he . e begin- ning, e a mo e elde l a ien .

Ho o o ec o. eam i an i . e. To gi. e o. a o. gh idea, e ha. e inc ea ed o. ICU bed f om 12 o 24. A he beginning, he e a onl 25% o le of o. eam membe o king be- ca. e of a . i e con i en n. mbe of ofe ional o. of d. a he e e fo. nd o be o i i. e fo COVID-19.

Wi h malle eam e a e fo ced o co e i h hi i . a ion b o king . e hea. long hif . Al o, i i an i . e o do e a hif and hen o. a e dee l in. ol. ed in a cena io hich i o all . ne ec ed and . nkno n. I ha. e een man e e , , ICU h ician and ofe ional c ing af e hei hif .

To o ec o. ofe ional , e . ed N95 ma k , goggle , ha , do. ble ai of glo. e and o ec i. e a on . We, of co. e, al o co. e hoe .

We a k o. ID doc o o . e . i e o. oced. e in he l e one befo e he main en ance of he ICU. Thi l e one a ne l b. il a i a no e en befo e, all hank o o. echni- cal g. .

A (Prof. Zhong): I a hocked b he n. mbe of c i icall ill a ien hen I a i. ed in Jin in an Ho i al in W. han, he de igna ed ho i al o ecei. e COVID-19 a ien . The e en -

ed i h e. e e h o emia and M. l i le O gan D f. nc ion S n-d ome (MODS).

Al o, he e a a lack of medical a and e didn' kno he h-e o. e onal o ec ion a eno. gh o kee . afe. The i . a-ion go be e hen he h ician f om all o. e China came o W. han o hel local ofe ional .

Q (Prof. Singer): Did you protect your teams by doing shifts? If somebody was infected and quarantined, how did you manage?

A (Prof. Peng): Of co. e an one e ed o i i. e (abno mal che CT o ical m om) ho. ld lea. e he eam and ha. e a e , and e o. ld ec . i a ne ofe ional a o he col-leag. e o. ld be in i k o be infec ed, e. en ho. gh he did no fea of he infec ed a ien .

A (Prof. Zhong): The e i a o a ion (hif): one eam e. e fo. eek and af e ha he ha. e o lea. e and ano he ne eam ill ake o. e . The ofe ional need, a lea , one- eek e a o king . nde . ch e . e i e ha. ing. We needed mo e eo le fo he e hif .

Q (Prof. Rello): What is the rotation of these shifts, 12 hours?

A (Prof. Peng): Ye , fo h ician one hif i 12 ho. . U . all , in m eam, e a ign h ee h ician o each hif . In he mo n-

ing he need o a on d. fo 4 ho. , hen he can go o. o ha. e l. nch and ome e (e. en hen no all of hem ill do i) and hen he o a e o he e i al a , a lea , one h ician kee ing an e e on he a ien in he ICU.

A (Prof. Zhong): In he beginning, fo he n. e one hif a eigh ho. , b. la e e fo. nd ha eigh ho. a oo e ha. - ing beca. e o kload i m. ch highe han anda d, he efo e he co. ld no kee o king o long. Then, e ho ened hei hif , o 6 o 5 ho. i h a highe o a ion of hif .

Q (Dr. Lamas): I have one question about the nurse shifts. After working for 5 or 6 hours, do they go back home and come next day, or they work 5 hours in the morning and then 5 hours in the evening? How do you manage these nursing shifts? We find very difficult to manage so many rotations.

A (Prof. Zhong): In o. ICU, if he n. e ha. e a 5-ho. hif in he da ime on he da , on he econd da he ill ha. e a 5-ho. hif in he af e noon, and on he hi d da he ill o k a nigh . Af e ha , he ge a hole da o e .

Q (Dr. Lamas): During the 5-hour shift, do you use the complete protective dress and equipment?

A (Prof. Zhong): To be hone , in he . e beginning e e e no . e . e of ha a he igh o ec ion o king in . ch an i ola ion ICU, b. e had he N95 ma k , face hield and do. ble glo. e . Fo almo o mon h , no a go infec ed.

A (Prof. Peng): I emembe ha he medical a had o end, a lea , 4 ho. in he ICU befo e going o he e ing oom o ha. e ome food o d ink a e . When he en back o he ICU, he m. change and d e a hole ne e of o ec i. e e . i men . The efo e, in o de no o a e o ec i. e e . i - men , he had o a in he ICU fo a lea 4 ho. befo e coming o. .

Q (Dr. Lamas): What is the nurse-bed ratio and doctor-bed ratio in your ICU?

A (Prof. Zhong): M ICU a a em o a ICU. The fo me ICU had onl 16 bed hich e e no eno. gh and he em o a one e anded o 26 bed . D. ing he mon h, e had 50 n. e and 12 h ician . No , e ha. e 80 n. e and 15 h ician .

Q (Prof. Singer): About the equipment, having an increased number of patients who need mechanical ventilation, I guess you didn't only have sophisticated ventilators but maybe also some simple ventilators? Are you using them?

A (Prof. Zhong): In o. em o a ICU, e. e bed ha a medicali ed en ila o . We did no . e home-. e en ila o . ch a BiPAP. No ma e he he he a e fo non-in a i. e o in a i. e en ila ion, e all . e he ame en ila o .

Q (Moderator): We have a question from the audience. When the doctors and nurses finish their shifts, do they go home or stay at hospitals or any places nearby?

A (Prof. Zhong): A he ho i al l . o no , mo medical a come f om o he a of China and don' li e in W. han, o he h ician and n. e ill a in ho el nea he ho i al be een hif . E en fo he local ofe ional , mo of hem do no go back home af e hif . Fo ho e going home, he i ola e hem el. e f om hei familie .

A (Dr. Storti): In l al , he e a e a n. mbe of h ician and n. e ho efe being o. ided i h ome a ea o a a he han e . n i h hei familie . Pe onall , I ha. en' een m famil fo a long hile beca. e e a e dee l in. ol. ed in an en. i- onmen hich i highl infec i. e.

We a e dealing i h o kind of o . la ion. One g o. , of co. e, i he ICU a ien ho ma ha. e ARDS o a e on in. a i. e mechanical . en ila ion and e al o ake ca e of a ien in a ne S e -Do n Uni (SDU) of abo. 20 bed .

We a ange e a a e a ea fo he eme genc de a men , and e a e eaning a la ge n. mbe of a ien beca. e e don' ha. e eno. gh ICU bed . We a e ing o kee he e a ien ali e and o. ide NIV fo hem, b. hi kind of CPAP . en ila ion c e- a e a cena io hich i no o i i. e f om he infec ion ead oin of . ie .

Finall , e fo. nd ano he o of o e cena io i h he h. ge di o o ion be een e o. ce and n. mbe of a ien in he

Q (Dr. Lamas):

A (Dr. Storti): We do i . We o en ila e and o ide o gen o all a ien , b. i i no ea . J. a o. gh idea, e ha. e inc ea ed o. o gen con . m ion, in e m of o. ce, oo clo e o o gen c a h , beca. e he o al amo. n of o gen con . m - ion i h. ge. All he . en ila o in ICU, SDU, and a la ge o ion of medical bed , e. e ingle a ien , if no . en ila ed, i ha. ing an o gen he a . Con ide ing ha , e ha. e a ked o. echni- cal g. o in all en 220V o gen ocke in he ER beca. e he e a e no eno. gh o gen oin o connec o he a ien .

To kee o. a ien ali. e, CPAP i . ef. l in he ER hile ai ing fo SDU o ICU admi ion. I i no a gold anda d, b. ha i he onl a o kee hem ali. e and ha i he ea on h e a e e. en mo e commi ed o o ec o. a , beca. e he a e ill o king in an . n afe en. i onmen .

In he. e beginning e ied o kee e a a e ack fo o i- i. e and nega i. e a ien fo COVID-19, b. beca. e of he o. - b eak, i ha become . e di c. l o achie. e.

Q (Dr. Lamas): And how about in China, do you used high flow oxygen therapy?

A (Prof. Peng): Ac. all , e ha. e imila i . e . If mo a ien a e on HFNC, he ho i al ill . n o o gen . l and e a e al o conce ned abo. he ai bo ne gene a ed f om he infec ed a ien . Ac. all , e moni o ed he . i . e ence and concen- a ion nea a ien in di e en en. i onmen of 2 ICU : One ICU had i indo o en, hile he econd ICU a e . i ed i h nega i. e e . e. We de ec ed a highe . i . concen a ion in he ai on he ICU, he ea on he ICU e . i ed i h nega- i. e e . e, he . i . concen a ion in he ai a ok, o hi ICU e . i ed i h nega i. e e . e a afe fo ofe ional o- . iding HFNC o hei a ien . The efo e I highl ecommend ha , if o. an o . e HFNC, do i in an ICU i h nega i. e e - . e. Thi i be e fo heal hca e ofe ional .

Q (Prof. Rello): Do you use any pharmacological prophylaxis to protect the healthcare workers?

A (Prof. Peng): The e i no ha macological o h la i . We j. ha. e PPE, hand h giene and a. oid c o -con ac . The e a e all he im o an mea . emen fo he ofe ional ' o ec ion.

Q (Prof. Rello): If the healthcare workers become infected and cured, will they get infected again by the same virus?

A (Prof. Zhong): A: We ob e . ed ome a ien ho e e di cha ged f om he ho i al ha. ing a nega i. e e and ome

eek la e , he came back o he ho i al o be e ed o i i. e again. We don' kno he he he e a ien go a econd infec ion, eac i. a ion o he j. e en' com le el c. ed af e he admi ion, b. i i al o im o an o men ion ha e ha. e een ome fal e nega i. e e .

We ook am le f om he mo. h and h oa , hich e e no dee , o e e e e. n . e he he i a beca. e of he am le ob en ion ha e had fal e nega i. e e .

Q (Prof. Rello): The Lancet just published a very nice paper on mortality, It indicated and association of high Procalcitonin (PCT) and mortality. Does it mean that a high PCT would be criteria for prognosis?

A (Prof. Zhong): We a e a a e of he a e in he Lance and, in m e e ience, e ob e . ed nea l 100 a ien , and e did no ob e . e he ame a ocia ion be een he PCT and he o. - come . So, I don' kno if he e i a ela ion hi be een PCT and he mo ali d. e o COVID-19.

A (Prof. Peng): We al o fo. nd ha a high co. n of ne. o hil and lo co. n of l m hoc e edic ed oo o. come . Inc ea ed PCT le. el obabl indica e he econda infec ion of he a ien f om bac e ia o f. ng. , e eciall in he la e age of he illne , beca. e he e a ien a e in imm. nocom omi ed i . a ion and can ea il de. elo econda infec ion .

Q (Prof. Rello): Regarding ventilatory strategies, here in Spain, we identified two different phenotypes: Some patients show a high pulmonary compliance, because they have a viral pneumonia and a severe hypoxemia. In the second phenotype, many patients were managed with delayed intubation, some of them with a high PCT that probably means over-infection, and the others were treated with delayed intubation like NIV. Do you document these two phenotypes in China and Italy? What are the implications of ventilatory management in these two phenotypes?

A (Prof. Peng): We ob e ed ha mo of o. a ien had a lo . lmona com liance. If he com liance le el i le han 10 o 15 ml/cm H2O, i i no ea o ean hem o he en ila o and i al o co ela e o oo o. come . Fo hi e of a ien , he lo e com liance, he oo e o. come.

I don ha e an ecommenda ion fo en ila o . o a an en ila o . o ma no o k fo hi e of a ien i h e lo l. ng com liance.

Q (Prof. Rello): In Italy, did you see patients with high pulmonary compliance on viral pneumonia that require different ventilatory strategies? This is very important because, in the beginning, they are hypoxemic, and they get intubated very quickly but they don't behave like ARDS but like a viral pneumonia. In my opinion,

they need different ventilatory strategies like higher VT with lower PEEP and probably, prone position may not be required. What is your experience in Italy?

A (Dr. Storti): Tho. gh . e ion. We ecei. ed . e ill a ien i h h o emic blood ga e ha e onded . e ell and . ickl o o ec i. e . en ila ion, meaning lo e Tidal Vol. me and highe PEEP. The PaO2/FiO2 im o. e . ickl managing hem i h one and . ine a egie , b. he oblem come hen o. o a he eaning oce . Tha i no o ea a he a e ill . e eak, and e en all he oblem a ocia ed o ea l eaning. I don' kno he he hi i a ma e of . en ila- o a eg o , a ome colleag. e belie. e, d. ing ea l ICU eaning af e onl one eek, he e i ill a . i al b. den ill ac i. e in he al. eoli and i ake longe o igge he in amma- ion e on e.

Some ime , e al o ecei. e a ien ho ing a clea ARDS a - e n con med b CT can and l. ng . l a o. nd ha e . e e - en i. el in he ER and ICU a a bed ide moni o ing ool. Al o ome ime e ecei. e h o ic a ien i h no . ch ARDS a - e n and, o. a e igh , e need o e ha e a bi he . en ila o a eg acco ding o hi la di e en a e n.

I i im o an o cla if ha I am no o . e abo. all he de ail of he e a e n j. . beca. e e ha. e oo man a ien and i i ick o o. ide he ame con an anda d of ca e o 24 ARDS a ien oge he a i i an e emel ime-con . ming o foc. on he e man a ien a he ame ime.

I ha. e no e am le of he e o a e n o. men ion fo che com liance, l. ng com liance, b. , ob. io. l , he di e en a -

e n ma need o be en ila ed in di e en a . B. again, in . e ARDS, PEEP ho. ldn' be oo high o o ec hem f om ne. mo ho a . An ho hen e ha. e cena io he e e a e le e e ienced, e managed he e a ien i h he con. en- ional o ec i. e ARDS a eg and ma be he com liance o. men ioned be e co ela e i h ha he CT can ell . .

Q (Prof. Rello): In these patients with isolated viral pneumonia, with high pulmonary compliance and severe hypoxemia, probably the main finding is hypoxic vasoconstriction. In these patients, the major issue is indeed related to perfusion, as the lung is ventilated and increased PEEP may not help. Are these patients taking benefits from nitric oxide (NO)?

A (Prof. Peng): Ac . all , fo hi e of a ien , if he l. ng com liance i le han 10 ml/cm H2O, i i no good. If he com liance i a o. nd 20 ml/cm H2O, e ill o hel hem b . ing on one o i ion a oon a o ible. Then e ill oceed o . e gen le l. ng ec . i men manoe. . e ha ma im o. e l. ng com liance, j. . . ing a lo PEEP, no highe han a o. nd 20 cm H2O, o he i e e can ind. ce l. ng inj. and ne. mo ho a . Fo he gene al e ing e e he PEEP belo 10 cm H2O fo he l. ng- o ec i. e . en ila ion a oach.

Q (Prof. Rello): Dr. Storti, any different comments on the use of NO to improve pulmonary perfusion?

A (Dr. Storti): Ye , e . e i . Since e ha. e mo e han do. bled o. ICU bed , e al o do. bled he con . m ion of NO.

Some ime e ha. e a good clinical e on e, b. ome ime he a e non- e onde . B. hi i m e onal a oach, meaning ha , hen I am no 90% o 100% . e, I al a o e fo m a NO ial and if I manage o ed. ce FiO2, I'll o kee he NO on.

I am a a e of he fac ha he Chine e colleag. e do no . e NO beca. e e ha. e di c. ed in he e. io. ebina b. I ha. e a . i e o i i. e e e ience i h NO; if he a ien e ond , I kee . ing i ; if he do no e ond, I . end i .

Q (Moderator): We have a question from the audience about the NO use, since you are talking about it. What kind of patients do you think should be good responders to NO?

A (Dr. Storti): I don' ha. e an an e o ha , an ho he h iological ba ic ha. e been clea l de c ibed b P ofe o Rello and he eem ea onable.

M . e ionable beha. io. i . e ba ic: hen I ee a high FiO2 ha al ead eached dange o. le. el of e . e, I o . e NO in addi ion. And hen I no o . e high FiO2, b. PEEP and d i. ing e . e o adj. he idal . ol. me o o ec he l. ng.

Q (Dr. Lamas): We don't have many ECMO machines, so how do you select patients for ECMO? And how do you manage the situation?

Q (Prof. Rello):

I al o ied o. nde and ha ha en o egnan omen b com a ing hem o non- egnan omen of he ame age b. , . nfo . na el , i i di c. l o nd non- egnan omen on he ame age ho a e ill f om COVID-19, onl a fe and mo of hem a e n. e .

I ied o collec ome da a f om he comm. ni of infec ed a ien and I co. ldn' nd an hing ele. an , b. I ill hink ha egnan omen a e . . lne able o he COVID-19, o I o. ld ecommend e a ca e e. en he don' ho an m om .

Q (Prof. Rello): What about immunocompromised patients? And what about children? Because looking at the reports, initially the main target was elderly people, but later on younger people joined.

A (Prof. Peng): Ac . all , I ha. en een an child en infec ed i h he COVID- 19 in m ho i al, b. e ha he a e in he child en' ho i al.

Fo imm. nocom omi ed a ien . ch a o gan an lan a iono . nde chemo he a , adio he a , of co. e, he ma be . . lne able o he COVID-19. I a ome of hem and he e. ol. ion de end on hei clinical o : if he e a ien a e ill a he ea l age of he o gan an lan a ion o chemo he a , he can become e. e el ill. O he a ien i h an o gan an lan ed one o o ea ago o. ld be al igh o ho mild m om .

Q (Moderator): I would like to ask something from the audience. Did you observe if these patients are more likely to get a nosocomial infection in the hospital?

A (Prof. Peng): I didn nd an di e ence f om o he a ien . Ma be he no ocomial infec ion i mo e likel o ha en in a mo e ad anced age, no in an ea l age, e eciall if he a ien a in he ho i al fo a long ime.

Q (Moderator): But you didn't notice a difference with other patients' populations, right?

A (Prof. Peng): No, I didn nd an di e ence f om o he o . la ion . The l m hoc e le el and e e e l m ho enia de end on hei i . a ion, a ICU a ien a e . e ill b. in he a d , he a e le ill.

Q (Moderator): That takes me to other question from the audience related to these "less ill" patients: Is there any experience of treating them at home or a different place other than hospitals?

A (Prof. Peng): A m oma ic a ien a e e . e ed o a a home on . a an ine b. , . nfo . na el , in China no mo of he a a men ha e onl o bed oom and i i di c. l fo hem o main ain he . a an ine and he ea il infec o he famil membe .

Tha a a big i . e in ea l age f om W. han and ha h o man eo le e e infec ed, beca. e he go i f om hei famil .

Q (Moderator): Controversial question from the audi-

A (Dr. Storti): Fi , of all, I hink ha i i im o an , o e ac l de ne ha i , he l. ng in. ol. emen and I hink ha CT can doe , he job a

We had one a ien ha e ed o i i. e onl on he 3 d PCR e hen all he e. idence a clea , and hi i . e e f. l a e don kno if e can dec ea e he le. el of o ec ion if hi a ien i on an ICU. The efo e, m . e ion i ho man PCR on he ame a ien a e o. e fo ming o make . e abo. he co ec e . l ?

And he econd . e ion i if he e i an . ef. l blood e ba ed in Imm. noglob. lin M and Imm. noglob. lin G a e ee man com anie o e ing hem, b. I am no an con den ha . ing he e e i going o hel . o manage he e a ien .

A (Prof. Rello): Rega ding he PCR e , I hink ha e need o ado he ame a oach ha e follo ed i h in . en a a hi i a i . ha ha a ecial a ni fo lo e e i a o ac . Fo e am le, if o. ha. e a egnan a ien i h a con i en e en a ion of in . en a ne. monia and he na al ab i nega i. e, o. ill no change he a oach and ea he fo in . en a ne. monia.

COVID-19 ho a . e cha ac e i ic e en a ion i h high C eac i. e o ein, lo PCT, l m hoc enia and, in e. e e ca e , in . ba ion and mechanical . en ila ion. When o. ake a na al o h oa ab f om hi a ien and he e . l i nega i. e, ha ma ha en beca. e he . i al b. den i lo , beca. e he e ma be a oblem i h he e , o a oblem hen an fe ing he am le o he lab and hi i h I belie. e ha e ha. e o follo he ame a oach e ado fo in . en a managemen and con in. e i h he ame managemen .

Al o, and de i e incon i en e e . l , I o. ldn ecommend o e fo m b onchoal. eola la. age (BAL) a e ha. e, o gi. e io i o he heal hca e o ke afe .

A (Prof. Peng): I o all ag ee i h o. . The PCR en i i. i i onl 40% o 50%, hich i no good eno. gh, an ho o. can con ec. i. e ime .

On he o he hand, j. imagine ha o. co. ld de ec he an ibodie in a blood e . Tha o. ld be he be a o hel o. de ec he he he a ien i infec ed o no . If he a ien ' an ibod le. el a e high hen, de ni el he a ien i o i i. e in he COVID-19, he efo e o. can combine he e o e .

If o. a ien ho he ical m om , he ical che CT can and al o he elec i. e . e , hen e e he clinical diagno i o COVID-19, e. en i ho. he o i i. e. i . PCR e .

A (Prof. Zhong): I ag ee i h P ofe o Peng and ma be he an ibod e ma hel o diagno e he e a ien .

If e ha. e a a ien ha a nega i. e fo PCR e , b. o i i. e fo he an ibod e a ell a fo he IgM and IgG, i ge . e di c. l o e lain h he PCR i nega i. e. Ma be i en i i. i i no eno. gh fo a ela i. e lo amo. n of . i . ? So, e m. be . e ca. io. i h he e nega i. e e . l a e don kno he he he e a ien , . on ho i al di cha ge, ill ead he infec ion. Ma be he an ibodie e o. ld hel .

A (Dr. Storti): We e e ienced ha he e, in he no h of l al , ome ho i al ended . f. ll colla ed j. beca. e he e e ai ing fo ab de e mina ion ki , hich a e ho ing a . e oo en i i. i , e eciall i h he nega i. e e . l a he don mean an hing. I can . o hi idea beca. e ome of m h ician e en ed fe. e , co. ghing and he ical m om , and af e o nega i. e PCR e and 10 ho. , he go a highl . ce ible o i i. e CT can.

l i an i . e o ado hi a he de e mina ion e in l al a he e co. ld be e. e al oblem hen ob aining he am le, a fo e am le, ho e a ocia ed o he o e a o managemen and am le mani . la ion. Al o, in o. ICU comm. ni in l al , o con m a nega i. e e , e el on am le a i a ion f om he lo e e i a o ack a he han j. he na al and h oa ab .

Al o, follo ing o. Chine e colleag. e 'ad. ice, e ill a omo o he lgG and lgM de e mina ion in combina ion i h he o he e . An ho , m o inion i no o combine b. elec a di e en em, b. . nfo . na el , hi i no ea beca. e ha o. go. e nmen and heal h ca e em a e e . e ing i no o. e lgG and lgM de e mina ion o con m e .

A (Dr. Lamas): B combining lgM and lgG de e mina ion , e ha e can inc ea e diagno i ' en i i. i oge he i h CT can and l m ho enia and hen he ic . e o. ld make mo e en e fo . . l i . i e di c. l o manage lo e o. ce hen ing o e a a e COVID-nega i. e f om COVID- o i i. e a ien o manage hem, and ha h , a a doc o , I don' feel . e con den abo. nega i. e e , a e al a kee ome . icion of ha. ing fal e nega i. e e . l .

A (Moderator): l i g ea ha e had di c. ed . i e a lo abo. heal hca e ofe ional ' afe and o ec ion d. ing hi mee ing and, in line i h ha e ha. e ano he . e ion f om he a. dience: a e he e al ead an a. ailable g. e of COVID-19 mo ali i hin he heal hca e ofe ional ?

A (Dr. Storti): I hink ha he mo ali in l al no i e high, b. I m no . e ha an acc. a e calc. la ion o. ld be fea ible no , a I do no f. ll el on he ab e and I am . e ha e a e

. nde e , ima ing , he o i i. e o . la ion, , he efo e , he mo , ali i di c. l , o be calc. la ed.

He e, I hea d , ha a lea , , o heal hca e ofe , ional died: one a in he e-ho i al eme genc e . ice and , he o he one a a ho i al n. , e, b. , l. ckil , , he n. mbe among ofe , ional i . e , mall.

Q (Moderator): I forward this question now to our Chinese participants, what is your experience regarding to mortality within the healthcare professionals?

A (Prof. Peng): C. en I e eall don , kno , he mo , ali g. e among medical ofe , ional . I j. , , kno , ha , ome h , ician and n. , e died d. ing , hi o. , b eak, b. , I don , kno , he o cial n. mbe . Al o, I am no a a e of , he , o al n. mbe of heal hca e ofe , ional infec ed.

A (Prof. Zhong): Nei he am I a a e of , he e g. e . I , hink , he e , ho. ld be , ome . blica ion abo. , , he e . l , and ma be e can , ee , he mo , ali in , he e a e , , b. , I am no , . e.

In di e en kind of o . la ion g o. , , he e en di e en mo - , ali a e . A , aid befo e and in m e e ience in , he ICU, hen , he mo e ill a ien , og e ed , o a . e , e. e e i . a ion, , he mo , ali a e on , hi g o. i . e high, e. en highe , han ARDS a ien , f om o , he ca. , e.

Al o, e kno , ha , he a m , oma ic, mild and mode a e o . la- , ion a e , he la ge o o , ion of , he COVID-19 a ien , . Wi hin , hi o . la ion I ha. e , ea ed colleag. e and , he o. , come e e good.

A (Prof. Rello): Mo ali g. e icall ho . 18 da af e illne on e . So, in E. o e e canno ill e ima e ha , a lea f om S ain e canno o. ide an eliable info ma ion.

The ebina i ini ia ed and o gani ed b Mind a in he in e e of he heal hca e comm. ni o comba COVID-19. Thank o he con ib. ion of all he aneli ho join in he di c. ion ol. n a il i h no con ic of in e e .

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