Time for a "Second Wave" of COVID-19 Data

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enin supposedly said, “There are decades when nothing hap-

pens, and there are weeks when decades happen.” Although

likely apocryphal, the statement is nonetheless a good summary

for what 2020 has felt like. The early days of the first wave of

the coronavirus disease 2019 (COVID-19) pandemic simultaneously

seems like a few months ago and many years ago. In March and

April, our community was dealing with the rapidly growing body

of literature regarding neuroimaging findings in these patients

and trying to tie this into our developing knowledge regarding

the pathophysiology of this novel pathogen. By now, though, we

are familiar with the common imaging appearances of some crit-

ically ill patients with COVID-19.

As a group, we have responded admirably to the pandemic

in other ways, too. In addition to providing front-line serv-

ices for both diagnostic and interventional neuroradiology,

neuroradiologists have, during a few short months, come to-

gether to share valuable information with each other. Rather

than retreating inward, the advent (and wide normalization)

of regular webinars has meant that we can now attend more

conferences than ever and catch up with talks later if they

occur at an inconvenient time. Thanks to a plethora of com-

munication tools, from WhatsApp groups and Twitter to

mailing lists and American Society of Neuroradiology chat

forums, we have come together and shared information on

topics ranging from COVID-19 neuroimaging to personal

protective equipment protocols and remote working tips.

Thus, while we see each other less and less, in ways we are

working closer than ever.

Keeping up to date with medical literature in general is a

d daunting task, though, and this problem has been magnified

many times over when trying to keep current with COVID-

19-related articles, which sometimes feels like drinking from

a firehose. The first wave of such literature with regard to

neuroimaging consisted of mainly single-center, retrospec-

tive case series (including contributions from our own cen-

ter2), which were followed by larger retrospective, sometimes

multicenter series.3 As experience has grown, some patterns

are beginning to emerge. For example, it is now clear that a

certain subset of critically patients with COVID-19 can pres-

ent with diffuse white matter changes, thromboses (either

large-vessel occlusions or microvascular thromboses), and

even hemorrhage. This information is thanks to the many

published series so far.

However, even in times of an urgent need for more informa-
tion about this new virus, we must not let our hunger for answers

overcome our desire to seek better, higher-quality data. In the

“gold rush” of articles that have come forth following the emer-
gence of this new disease, we as a community can often eagerly

rush to extrapolate an overriding story or narrative from limited

or early data. One example of this came earlier this year, when a

few small-denominator case reports suggested that there was a

higher rate of stroke due to large-vessel occlusion (LVO) in

younger patients with COVID-19. These reports received wide-

spread media coverage, but the media did not widely report

the multiple subsequent larger series that showed that, in fact, the

number of LVO presentations was much less during the

pandemic.

We, thus, need to try to distinguish the signal from the noise,

and the truth is that there are many things that we do not yet

know. We do not know how many asymptomatic patients with

COVID-19 will show changes on their imaging studies or how

many patients will show such changes but only demonstrate mild

symptoms. We do not know how many patients who would have

been admitted before the pandemic but were, instead, sent home

had neurologic changes as a result of the virus. We also do not

know whether some of the imaging findings we are seeing, micro-
hemorrhages, for example, are related to their critical illness/in-
tensive care unit syndrome or are unique to patients with

COVID-19. Finally, and perhaps most important, we do not yet

know the natural history of these imaging findings and how they

may relate to the patient’s clinical course. What about the neuro-

logic and neuroimaging findings in patients with so-called “long

COVID” or patients who have recovered from the disease but still

have the sequelae?

Much of the data we have thus far are poor-quality and ret-

rospective in nature. This is not a criticism, but rather an ob-

servation. Such is the nature of figuring out an emerging new

illness, and these case reports and case series provided very

useful information at a time when it was badly needed. How-

ever, the answer to this problem is not to collate the data

we have and run it through the “meta-analysis machine.” It is,

instead, time for us to look forward to a second wave of
COVID-19 data, a wave of prospective, multicenter, and more long-term studies. Many such studies are ongoing, and we eagerly look forward to the results.

REFERENCES