



Physician connect

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Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you '**Physician connect**' which contains latest and interesting news in the field of Medicine.

This issue contains

- Relationship between hypertension and antihypertensive treatment with COVID-19 mortality
- Atherosclerotic Renovascular Disease and Peri-stenotic Collateral Circulation
- A Meta-Analysis on Evidence for Longer-term Effects of Acupuncture in Musculoskeletal Disorders

Should you require any specific article or medical information, please feel free to contact us at

medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,

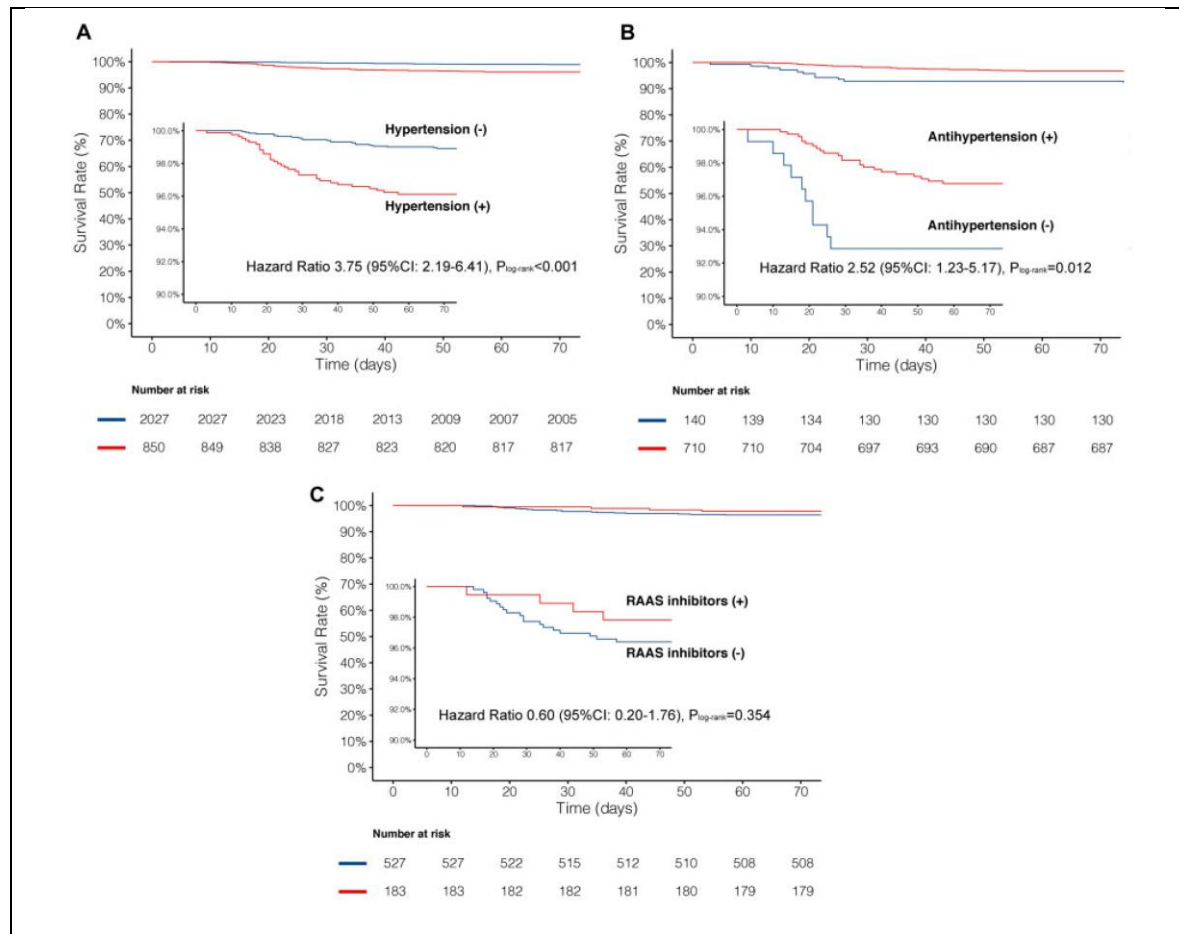
Medical Team, Micro Labs Limited

Relationship between hypertension and antihypertensive treatment with COVID-19 mortality

Coronavirus disease 2019 (COVID-19) has caused a significant health burden. Along with the highly infectious capacity of the virus, the mortality rates have been reported to range from 1% to >5%. It has been reported that patients with COVID-19 and hypertension may have an increased risk for adverse outcome. It remains unknown whether the treatment of hypertension influences the mortality of patients diagnosed with coronavirus disease 2019 (COVID-19).

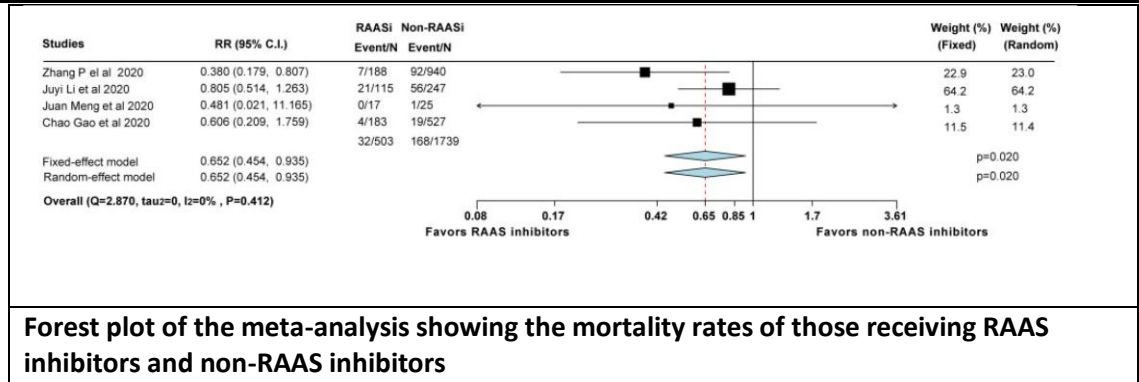
The hypertensive patients continued to demonstrate a two-fold relative increase in the risk of COVID-19 mortality.

This is a retrospective observational study of all patients admitted with COVID-19 to Huo Shen Shan Hospital. The hospital was dedicated solely to the treatment of COVID-19 in Wuhan, China. Hypertension and the treatments were stratified according to the medical history or medications administrated prior to the infection. Among 2877 hospitalized patients, 29.5% (850/2877) had a history of hypertension. After adjustment for confounders, patients with hypertension had a two-fold increase in the relative risk of mortality as compared with patients without hypertension [4.0% vs. 1.1%, adjusted hazard ratio (HR) 2.12, 95% confidence interval (CI) 1.17–3.82, $P = 0.013$]. Patients with a history of hypertension but without antihypertensive treatment ($n = 140$) were associated with a significantly higher risk of mortality compared with those with antihypertensive treatments ($n = 730$) (7.9% vs. 3.2%, adjusted HR 2.17, 95% CI 1.03–4.57, $P = 0.041$). The mortality rates were similar between the renin–angiotensin–aldosterone system (RAAS) inhibitor (4/183) and non-RAAS inhibitor (19/527) cohorts (2.2% vs. 3.6%, adjusted HR 0.85, 95% CI 0.28–2.58, $P = 0.774$). However, in a study-level meta-analysis of four studies, the result showed that patients with RAAS inhibitor use tend to have a lower risk of mortality (relative risk 0.65, 95% CI 0.45–0.94, $P = 0.20$).



Kaplan–Meier survival curves for mortality from the time of symptom onset. (A) Patients with or without hypertension, (B) patients with or without antihypertensive treatment, (C) patients with ACEI/ARBs (RAAS inhibitors), or beta-blocker, CCB, or diuretics (non-RAAS inhibitors),

The main findings of this analysis can be summarized as follows: (i) after adjustment for confounders and compared with the non hypertensive patients, the hypertensive patients continued to demonstrate a two-fold relative increase in the risk of COVID-19 mortality; (ii) the patients with a history of hypertension but without antihypertensive treatment were associated with a significantly higher risk of mortality compared with those with antihypertensive treatments;



(iii) the relative rates of mortality, the severity of COVID-19, and percentages of ventilation were not statistically different between the patients treated with RAAS inhibitors and non- RAAS inhibitors. However, in the meta-analysis, RAAS inhibitors tend to be associated with a lower risk of mortality.

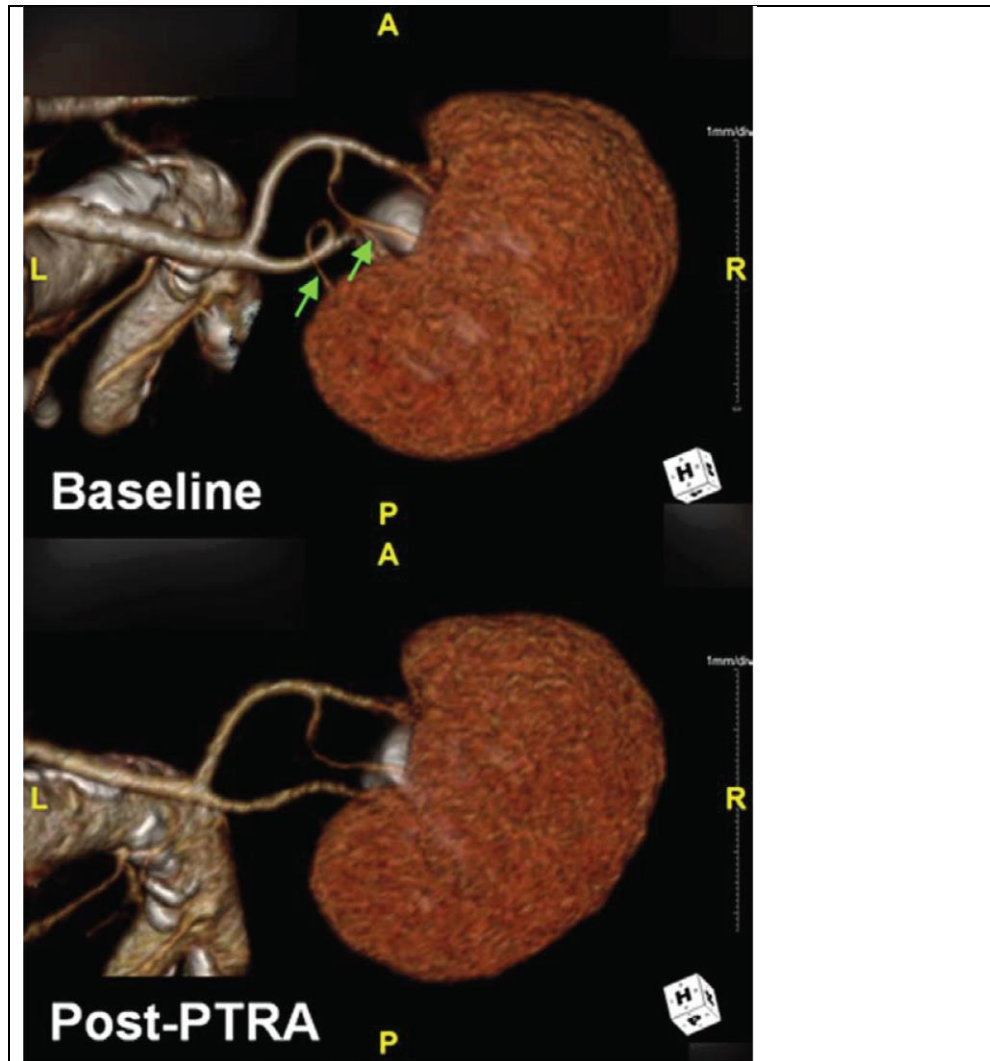
Source: Gao C et al. Eur Heart J. 2020 Jun 7;41(22):2058-2066. doi: 10.1093/eurheartj/ehaa433.

Atherosclerotic Renovascular Disease and Peri-stenotic Collateral Circulation

Atherosclerotic renovascular disease (ARVD) reduces renal blood flow (RBF), induces secondary hypertension and deteriorating renal function, potentially progressing to ischemic nephropathy and end-stage renal disease. However, the mechanisms underlying loss of renal function remain obscure. In select cases of ARVD, percutaneous transluminal renal angioplasty (PTRA) may be considered to preserve renal function. However, randomized clinical trials comparing medical therapy (MT) with PTRA could not establish the superiority of the latter for controlling hypertension and preserving renal function.

Patients with C-ARVD have greater kidney dysfunction, atrophy, hypoxia, and inflammation compared with patients with NC-ARVD.

The significance of peristenotic collateral circulation (PCC) development around a stenotic renal artery is unknown. We tested the hypothesis that PCC is linked to loss of kidney function and recovery potential in patients with atherosclerotic renovascular disease (ARVD).



Representative multidetector computed tomography images showing the effect of percutaneous transluminal renal angioplasty (PTRA) on periarterial collateral circulation (green arrows; online) regression in an patient with atherosclerotic renovascular disease. A indicates anterior; and P, posterior.

Thirty-four patients with ARVD were assigned to medical-therapy with or without revascularization based on clinical indications. The PCC was visualized using multidetector computed tomography and defined relative to segmental arteries in patients with essential hypertension. PCC number

before and 3 months after treatment was correlated with various renal parameters. Thirty-four stenotic kidneys from 30 patients were analyzed. PCC number correlated inversely with kidney volume. ARVD–stenotic kidneys with baseline PCC (collateral ARVD [C-ARVD], n=13) associated with elevated 24-hour urine protein and stenotic kidney vein level of tumor necrosis factor- α , lower single-kidney volume and blood flow, and greater hypoxia than in stenotic kidneys with no PCC (no collateral ARVD [NC-ARVD], n=17).

In the entire ARVD cohort, the average number of PCCs per patient was 0.80 ± 0.20 at baseline, not different between patients undergoing MT+PTRA or MT (0.87 ± 0.33 versus 0.71 ± 0.22 PCCs/patients, respectively, $P=0.656$). In patients with C-ARVD, PCCs remained unchanged following MT (from 1.43 ± 0.20 to 1.14 ± 0.34 PCCs/patient, $P=0.178$), but fell in patients undergoing MT+PTRA (from 2.33 ± 0.42 to 1.33 ± 0.42 PCCs/patient, $P=0.020$, Figure). In addition, the average PCCs/patient at baseline was not correlated with the degree of RAS (Pearson $r=0.186$, $P=0.475$).

Revascularization (but not medical-therapy alone) improved stenotic kidney function and reduced inflammation in both NC-ARVD and C-ARVD. In C-ARVD, revascularization also increased stenotic kidney volume, blood flow, and oxygenation to levels comparable to NC-ARVD, and induced PCC regression. However, revascularization improved systolic blood pressure, plasma renin activity, and filtration fraction only in NC-ARVD. Therefore, patients with C-ARVD have greater kidney dysfunction, atrophy, hypoxia, and inflammation compared with patients with NC-ARVD, suggesting that PCC does not effectively protect the stenotic kidney in ARVD. Renal artery revascularization improved in C-ARVD stenotic kidney function, but not hypertension or renin-angiotensin system activation.

These observations may help direct management of patients with ARVD. Detection of PCC in patients with ARVD is linked to unfavorable kidney

function and structure. Yet, revascularization in patients with ARVD with PCC is associated with regression of PCC and improved renal blood flow and function, albeit not blood pressure.

Source: Afarideh M et al. Hypertension . 2020 Jun 8; HYPERTENSION AHA12015057.

A Meta-Analysis on Evidence for Longer-term Effects of Acupuncture in Musculoskeletal Disorders

Acupuncture is a common modality in the therapy of musculoskeletal disorders. The evidence for acupuncture has been examined frequently, but a clear synthesis of previous research is currently lacking. This meta-analysis aimed to summarize the evidence for nonimmediate effects of acupuncture on pain, functionality, and quality of life in patients with musculoskeletal disorders, when compared with sham acupuncture.

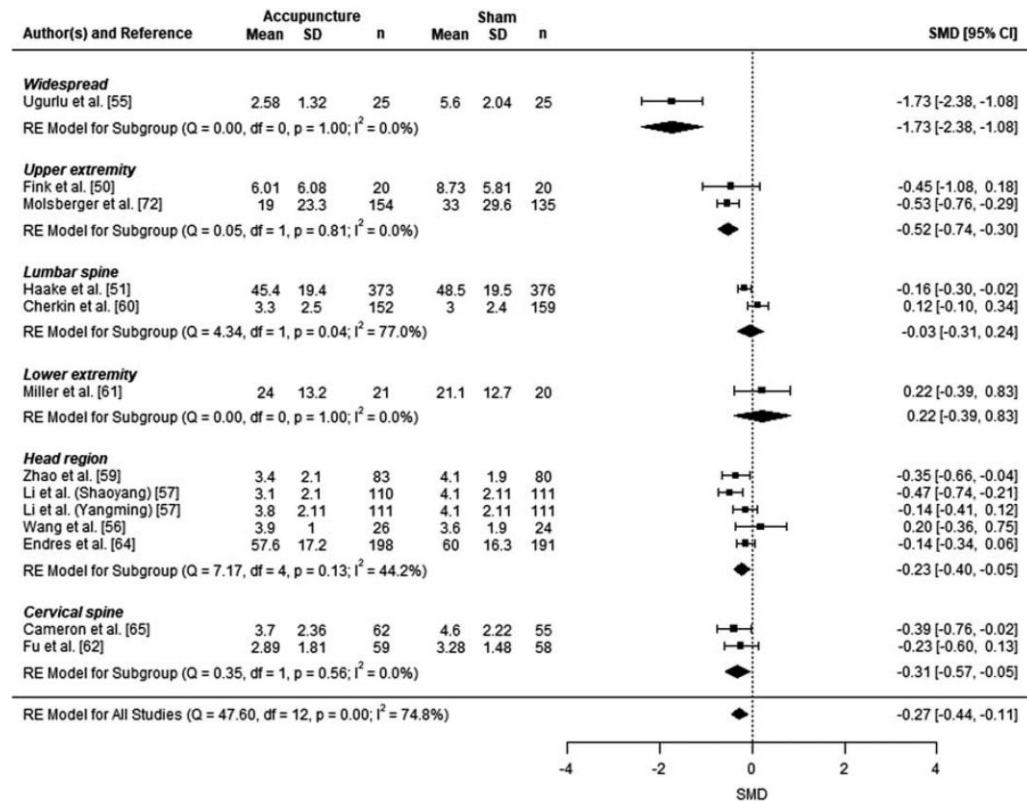
Search results from PubMed and Web of Science were brought together. All screening procedures were executed twice by 2 independent researchers.

The pooled standardized mean difference (SMD) with its confidence interval (CI) was estimated at follow-up at <1 month, 1 to 3 months, 3 to 6 months, and >6 months.

A significant difference in therapy effect, favoring acupuncture, was found for pain at <1 month, 1 to 3 months, and 3 to 6 months

For pain, the SMD equalled respectively -0.47 (CI -0.76 to -0.19), -0.27 (CI -0.44 to -0.11), -0.32 (CI -0.51 to -0.13) and -0.12 (CI -0.36 to 0.11) for <1 month, 1 to 3 months, 3 to 6 months, and >6 months follow-up. For functionality, the pooled SMD equalled -0.43 (CI -0.76 to -0.10), -0.41 (CI -0.76 to -0.05), 0.07 (CI -0.22 to 0.36), and -0.13 (-0.46 to 0.19). In the area of QOL, pooled SMD of respectively 0.20 (CI 0.04 to 0.35), 0.19 (CI

-0.01 to 0.39), 0.02 (CI -0.09 to 0.14) and -0.04 (CI -0.25 to 0.16) were obtained.



A significant difference in therapy effect, favoring acupuncture, was found for pain at <1 month, 1 to 3 months, and 3 to 6 months, as well as on quality of life at <1 month, and on functionality at <1 month and 1 to 3 months.

Source: Lenoir D et al. Clin J Pain 2020;36:533-549



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