



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

- Use of artificial intelligence and gastroscopy in Diagnosing chronic atrophic gastritis
- Prevalence of Albuminuria and Its Influencing Factors
- Relationship between Serum Aldosterone Concentration, Blood Pressure, and Coronary Artery Calcium

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

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Looking forward to your valuable feedback

Best Regards,

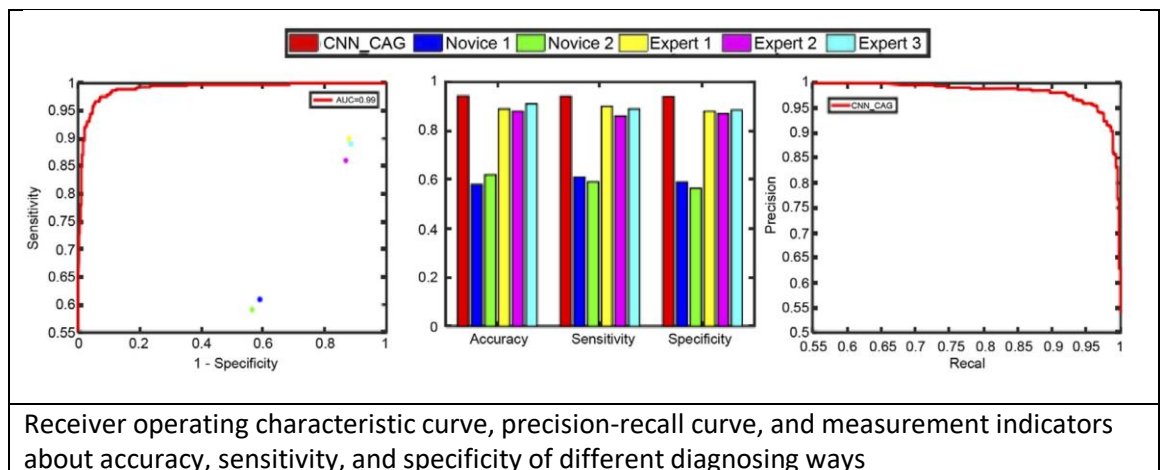
Medical Team, Micro Labs Limited

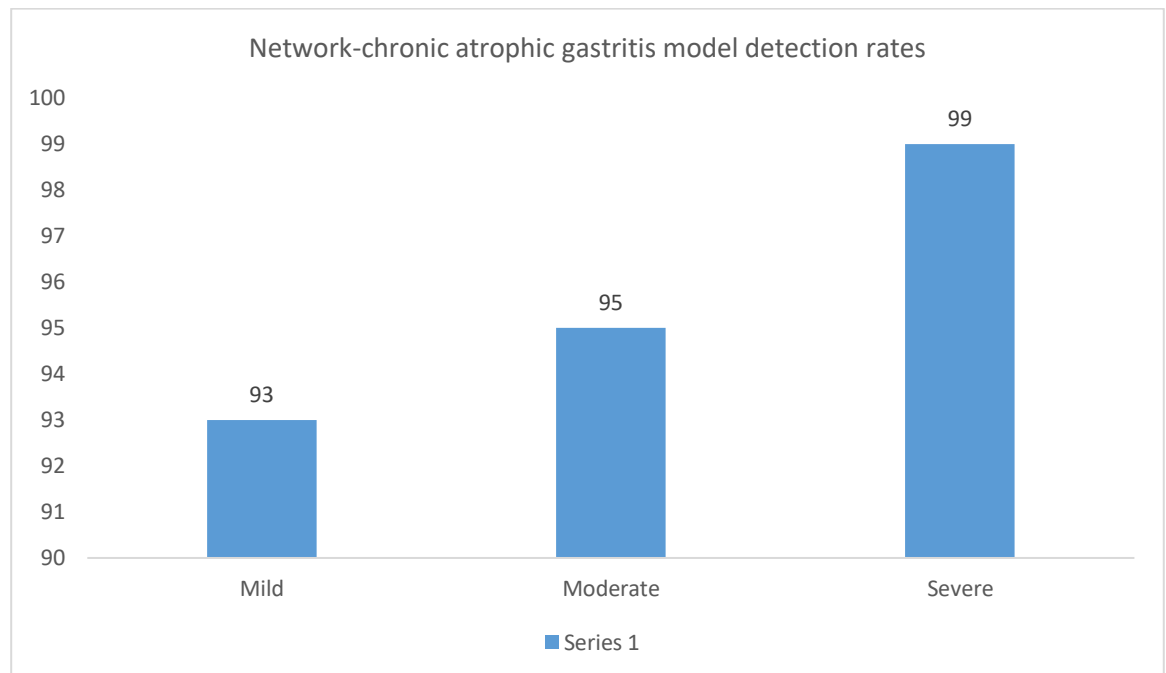
Use of artificial intelligence and gastroscopy in Diagnosing chronic atrophic gastritis

The sensitivity of endoscopy in diagnosing chronic atrophic gastritis is only 42%, and multipoint biopsy, despite being more accurate, is not always available. This study aimed to construct a convolutional neural network (CNN) to improve the diagnostic rate of CAG. As expected, the CNN-CAG model will be promising in drastically reducing the burden on endoscopy physicians, simplifying diagnostic routines and reducing costs for both doctors and patients.

5470 images of the gastric antrums of 1699 patients and labelled them with their pathological findings were evaluated. Of these, 3042 images depicted atrophic gastritis and 2428 did not. We designed and trained a convolutional neural network-chronic atrophic gastritis model to diagnose atrophic gastritis accurately, verified by five-fold cross-validation. Moreover, the diagnoses of the deep learning model were compared with those of three experts.

The diagnostic accuracy, sensitivity, and specificity of the convolutional neural network-chronic atrophic gastritis model in diagnosing atrophic gastritis were 0.942, 0.945, and 0.940, respectively, which were higher than those of the experts. The detection rates of mild, moderate, and severe atrophic gastritis were 93%, 95%, and 99%, respectively.





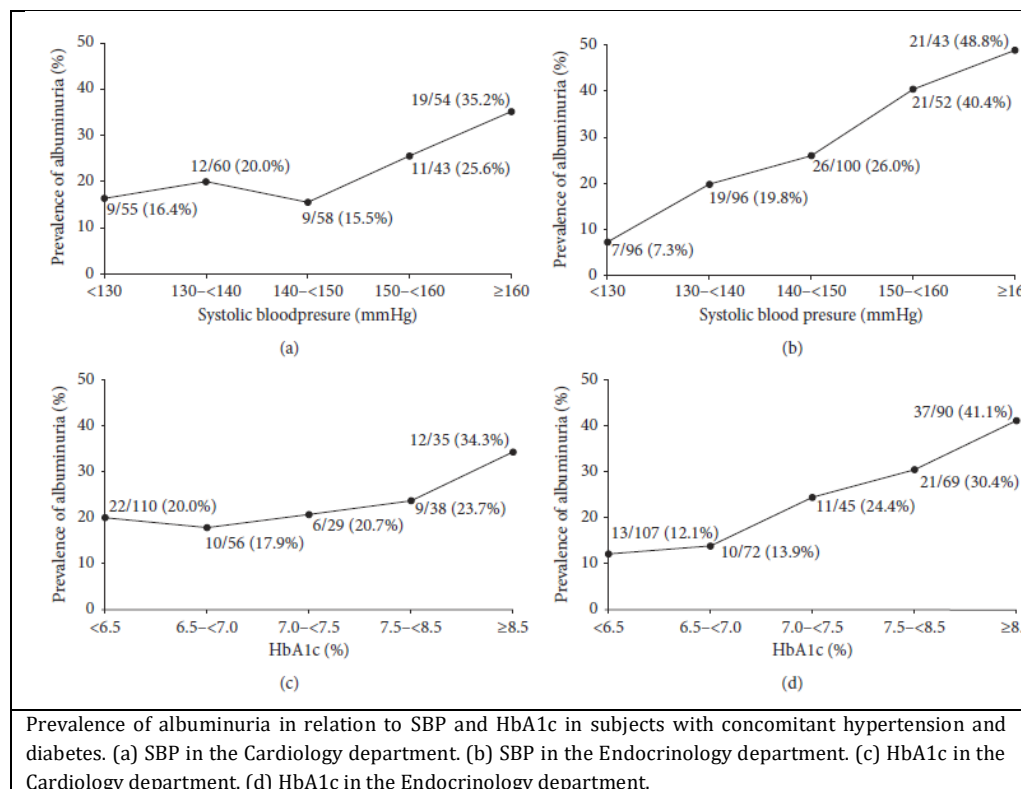
Chronic atrophic gastritis could be diagnosed by gastroscopic images using the convolutional neural network-chronic atrophic gastritis model. This may greatly reduce the burden on endoscopy physicians, simplify diagnostic routines, and reduce costs for doctors and patients

Source: Zhang Y et al. Dig Liver Dis. 2020 May;52(5):566-572. doi: 10.1016/j.dld.2019.12.146.

Prevalence of Albuminuria and Its Influencing Factors

Albuminuria, both microalbuminuria and macroalbuminuria, are important indexes in clinical practice. The study evaluated the prevalence of albuminuria and compare its risk factors in diabetic and hypertensive patients. Methods. This was an observational, cross-sectional, multicenter registry. Consecutive patients were registered with the Cardiology and Endocrine departments in 40 centers.

Clinical characteristics were collected, and urinary albumin-to-creatinine ratio (UACR) was measured using the immunochemical method. Results. Of the 2510 patients enrolled in the study, 1515 underwent UACR testing and were included in the present analysis. The prevalence of microalbuminuria was 13.0% and 16.1% while that of macroalbuminuria was 2.5% and 5.0%, in the Cardiology and Endocrinology departments, respectively. HbA1c and systolic blood pressure (SBP) were independent risk factors for albuminuria. The relationship of blood pressure (BP) and HbA1c with albuminuria was continuous and graded. Compared with the reference level of SBP 130–139 mm Hg, an SBP level of <130 mmHg was significantly associated with a lower risk of albuminuria in all subjects (OR = 0.60; 95% CI: 0.40–0.89;) and in subjects with concomitant hypertension and diabetes (OR = 0.48; 95% CI: 0.25–0.92; P<0.001). Nearly one-fifth of patients in the Cardiology and Endocrinology departments have albuminuria although ACEI/ARB were widely used.



Source: Ren et al. Intl. J Hypertens. 2020. ID 1231593. 1-7.Doi. <https://doi.org/10.1155/2020/1231593>

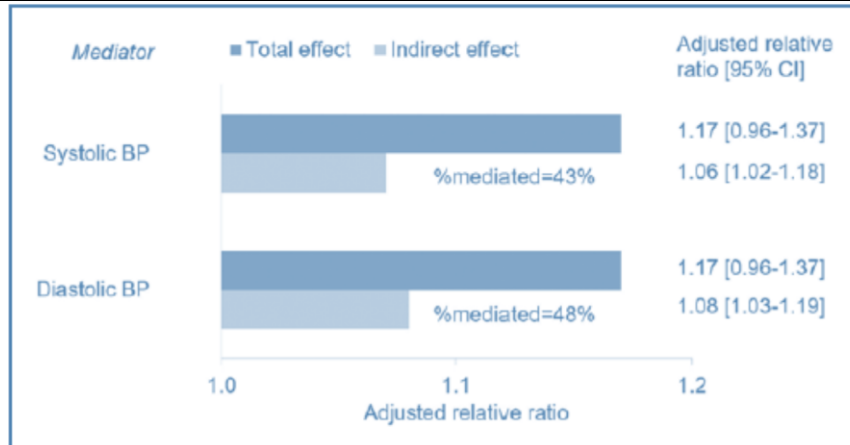
Relationship between Serum Aldosterone Concentration, Blood Pressure, and Coronary Artery Calcium

Aldosterone is a steroid hormone regulating fluid and electrolyte homeostasis and is known to increase the risk of atherosclerosis. In this study, we examined the associations of serum aldosterone concentrations with subclinical atherosclerosis and all-cause mortality. This study included 948 adults aged 46 to 88 years from the MESA (Multi-Ethnic Study of Atherosclerosis) with measurements of serum aldosterone and plasma renin activity and not taking antihypertensive medications.

Coronary calcification was longitudinally assessed using Agatston coronary artery calcium score from computed tomography scans. All-cause mortality was ascertained from the medical record. The average age (SD) was 62.3 (9.4) years and 53% were male. Among 700 subjects who had follow-up coronary artery calcium score (median follow-up of 6.4 years), higher aldosterone levels (per 100 pg/mL) were associated with higher coronary artery calcium (relative ratio, 1.17 [95% CI, 1.04–1.32]), with the association being most prominent in males with suppressed plasma renin activity (≤ 0.5 $\mu\text{g/L/hr}$).

Estimates	N	Adjusted Relative Ratio (95% CI)*†‡	
		Model 1§	Model 2
Total	700	1.25 (1.12–1.40)	1.17 (1.04–1.32)
Renin phenotype			
PRA ≤ 0.5	338	1.58 (1.30–1.93)	1.41 (1.11–1.81)
PRA > 0.5	362	1.14 (1.01–1.29)	1.14 (1.00–1.30)
P for interaction		0.001	0.05
Association Between Serum Aldosterone Concentrations and CAC			

Systolic or diastolic blood pressure mediated around 45% of the total effect of aldosterone on coronary artery calcium.



Over a median follow-up of 12.5 years (120 deaths identified among 948 subjects), aldosterone was associated with the increased risk of all-cause mortality when plasma renin activity was suppressed; hazard ratio per 100 pg/mL, 1.70 (95% CI, 1.10–2.63). In this study, higher aldosterone levels were associated with the increased risk of subclinical coronary atherosclerosis and all-cause mortality particularly when renin was suppressed. Our findings indicate the importance of aldosterone levels (even within the reference range) with respect to the cardiovascular system and overall health.

Source: Inoue et al. Hypertension. 2020;76:00-00. DOI: 10.1161/HYPERTENSIONAHA.120.15006



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