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| **Dataset** | **Exposure** | **Outcome** | **# of studies** | **Publications** |
| Chronic Kidney Disease | Hypertension | Age | 3 | **Meta Llama**:  Are there papers that prove hypertension is a cause of age with significant p-value. If not, please show me nothing. If so, please show me the papers.  **Answer from Llama**:  There are research papers that explore the relationship between hypertension and aging. While it's challenging to pinpoint a single study that definitively proves hypertension as a direct cause of aging, I can provide you with some relevant papers that investigate this association.  1. "Telomere length and hypertension" by Demissie et al. (2006) in the American Journal of Hypertension [1]. This study found an inverse relationship between telomere length and hypertension, suggesting that hypertension may accelerate telomere shortening, a hallmark of aging. (p-value < 0.01)  Source:  Demissie, S., Levy, D., Benjamin, E. J., Cupples, L. A., Gardner, J. P., Herbert, A., ... & Aviv, A. (2006). Insulin resistance, oxidative stress, hypertension, and leukocyte telomere length in men from the Framingham Heart Study. Aging Cell, 5(5), 325-331. doi: 10.1111/j.1474-9726.2006.00224.x  2. "Hypertension and epigenetic age acceleration" by Liu et al. (2018) in the Journal of the American Society of Hypertension [2]. This study discovered that hypertension was associated with accelerated epigenetic aging, as measured by DNA methylation age. (p-value < 0.001)  Source:  Liu, C., Marioni, R. E., Hedman, Å. K., Pfeiffer, L., Tsai, P. C., Reynolds, L. M., ... & Levy, D. (2018). A DNA methylation biomarker of aging for risk stratification and healthspan extension. Aging, 10(1), 147-163. doi: 10.18632/aging.101414  3. "The impact of hypertension on the aging brain" by Li et al. (2020) in the Journal of Neuroscience Research [3]. This review article discusses the effects of hypertension on cerebral small vessel disease, cognitive decline, and brain aging. While not providing a single p-value, the authors summarize the evidence supporting a link between hypertension and accelerated brain aging.  Source:  Li, Q., Zhang, Y., & Liu, X. (2020). Impact of hypertension on the aging brain. Journal of Neuroscience Research, 98(6), 751-764. doi: 10.1002/jnr.24385  These studies suggest a potential relationship between hypertension and aging, but it's essential to note that the relationship is complex and influenced by multiple factors. While these papers provide evidence, they do not definitively prove hypertension as a direct cause of aging.  References:  [1] Demissie et al. (2006). Insulin resistance, oxidative stress, hypertension, and leukocyte telomere length in men from the Framingham Heart Study. Aging Cell, 5(5), 325-331.  [2] Liu et al. (2018). A DNA methylation biomarker of aging for risk stratification and healthspan extension. Aging, 10(1), 147-163.  [3] Li et al. (2020). Impact of hypertension on the aging brain. Journal of Neuroscience Research, 98(6), 751-764. |
| Chronic Kidney Disease | Diabetes mellitus | Age | 3 | **Meta Llama:**  Are there papers that prove diabetes mellitus is a cause of age with significant p-value. If not, please show me nothing. If so, please show me the papers.  **Answer from Llama**:  While there isn't a direct causal relationship established between diabetes mellitus and aging, research suggests that diabetes mellitus can accelerate the aging process and contribute to various age-related diseases.  Here are some papers that explore the relationship between diabetes mellitus and aging, along with their significant p-values:  1. \*\*"Accelerated aging in diabetes: A review of the literature"\*\* (2019)  This review article discusses the accelerated aging process in diabetes, including the role of oxidative stress, inflammation, and epigenetic changes.  Source: Palmer AK, et al. (2019). Accelerated aging in diabetes: A review of the literature. Journal of Clinical Endocrinology and Metabolism, 104(11), 4510-4523. doi: 10.1210/jc.2019-00862  p-value: Not applicable (review article)  2. \*\*"Diabetes accelerates aging of the brain: Evidence from a meta-analysis of brain-derived neurotrophic factor (BDNF) levels"\*\* (2020)  This meta-analysis found that diabetes was associated with lower BDNF levels in the brain, which is a marker of aging.  Source: Zhang Y, et al. (2020). Diabetes accelerates aging of the brain: Evidence from a meta-analysis of brain-derived neurotrophic factor (BDNF) levels. Aging Research Reviews, 63, 101184. doi: 10.1016/j.arr.2020.101184  p-value: < 0.001  3. \*\*"Association between diabetes and telomere length: A systematic review and meta-analysis"\*\* (2020)  This meta-analysis found that diabetes was associated with shorter telomere length, which is a marker of cellular aging.  Source: Wang X, et al. (2020). Association between diabetes and telomere length: A systematic review and meta-analysis. Journal of Clinical Endocrinology and Metabolism, 105(11), 4429-4439. doi: 10.1210/clinem/dgaa648  p-value: < 0.001  4. \*\*"Diabetes promotes aging-related changes in the epigenome"\*\* (2019)  This study found that diabetes was associated with changes in the epigenome, including DNA methylation and histone modifications, which are characteristic of aging.  Source: Miao F, et al. (2019). Diabetes promotes aging-related changes in the epigenome. Epigenetics & Chromatin, 12(1), 45. doi: 10.1186/s13072-019-0303-9  p-value: < 0.05  While these studies do not provide direct evidence that diabetes mellitus is a cause of aging, they suggest that diabetes can accelerate the aging process and contribute to age-related diseases.  Please note that the p-values mentioned above are significant, but the relationship between diabetes and aging is complex and multifaceted. More research is needed to fully understand the underlying mechanisms. |
| Chronic Kidney Disease | Diagnosis of Chronic Kidney Disease | Specific Gravity |  | **ChatGPT-4o:**  Are there papers that prove Chronic Kidney Disease is a cause of Specific Gravity with significant p-value. If not, please show me nothing. If so, please show me the papers.  **Answer from ChatGPT-4o**:  There are numerous studies that investigate the relationship between Chronic Kidney Disease (CKD) and urine specific gravity. Specific gravity is a measure of urine concentration and can reflect kidney function. Alterations in specific gravity may indicate issues with kidney concentrating ability, a common problem in CKD.  Here are a few notable papers on the topic:  1. Patel, M. L., Sachan, R., \*\*&\*\* Yadav, K. (2015). “Significance of urine specific gravity in chronic kidney disease." \*Nephrology\*. This paper examines the correlation between CKD stages and urine specific gravity and reports significant findings.  2. Dhondup, T., & Qian, Q. (2017). "Electrolyte and acid-base disorders in chronic kidney disease and end-stage kidney failure." \*Blood Purification\*. This review includes a discussion on the impact of CKD on urine specific gravity as part of its broader evaluation of kidney function.  3. Levey, A. S., Becker, C., & Inker, L. A. (2015). "Glomerular filtration rate and albuminuria for detection and staging of acute and chronic kidney disease in adults." \*Annals of Internal Medicine\*. This article discusses various markers of kidney function, including urine specific gravity, in the context of CKD diagnostics and management.  **Meta-Llama-3.2:**  Are there papers that prove Chronic Kidney Disease is a cause of Specific Gravity with significant p-value. If not, please show me nothing. If so, please show me the papers.  **Answer from Meta-Llama-3.2**:  After conducting a thorough search, I found a few papers that investigated the relationship between Chronic Kidney Disease (CKD) and Specific Gravity (SG) of urine. Here are the results:  1. \*\*"Urine specific gravity and chronic kidney disease in a Japanese general population"\*\* (2018)  Published in the Journal of Nephrology, this study examined the relationship between urine SG and CKD in 12,444 Japanese adults. The results showed that lower urine SG was associated with a higher risk of CKD, with a significant p-value (p < 0.001).  Source:  Kaneko K, et al. (2018). Urine specific gravity and chronic kidney disease in a Japanese general population. Journal of Nephrology, 31(3), 441–448. doi: 10.1007/s40620-018-0494-4  2. \*\*"Association between urine specific gravity and kidney function in patients with chronic kidney disease"\*\* (2019)  This study, published in the Journal of Clinical Laboratory Analysis, analyzed data from 243 patients with CKD and found that urine SG was significantly correlated with estimated glomerular filtration rate (eGFR) and serum creatinine levels. The p-value for the correlation between urine SG and eGFR was < 0.01.  Source:  Kim H, et al. (2019). Association between urine specific gravity and kidney function in patients with chronic kidney disease. Journal of Clinical Laboratory Analysis, 33(3), e22841. doi: 10.1002/jcla.22841  3. \*\*"Urine specific gravity as a marker of kidney function in patients with chronic kidney disease"\*\* (2020)  Published in the Journal of Nephrology and Renal Transplantation, this study examined the relationship between urine SG and kidney function in 150 patients with CKD. The results showed that urine SG was significantly associated with eGFR and serum creatinine levels, with a p-value of < 0.001.  Source:  Lee S, et al. (2020). Urine specific gravity as a marker of kidney function in patients with chronic kidney disease. Journal of Nephrology and Renal Transplantation, 10(2), 53–59. doi: 10.4103/jnrt.jnrt\_34\_20  Please note that while these studies suggest a significant association between CKD and urine SG, the relationship may be influenced by various factors, such as hydration status and underlying kidney disease severity.  **Google Search:**  Chronic Kidney Disease is a cause of Specific Gravity with significant p-value.  **Answer from Google**:  **Diagnostic role of urine specific gravity to detect kidney impairment on heat-exposed workers in a shoe factory in Indonesia: a cross-sectional study:** [**https://bmjopen.bmj.com/content/11/9/e047328**](https://bmjopen.bmj.com/content/11/9/e047328) |
| Chronic Kidney Disease | Albumin | Chronic Kidney Disease |  | **Meta-Llama-3.2:**  Are there papers that prove Albumin is a cause of Chronic Kidney Disease with significant p-value. If not, please show me nothing. If so, please show me the papers.  **Answer from Meta-Llama-3.2**: |
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| **Biomarkers** | **Upper reference limit** | **Cut-off value** | **Unit** |
| CA125 | 35.000 | 46.455 | U/mL |
| CA153 | 25.000 | 14.505 | U/mL |
| CA199 | 27.000 | 25.430 | U/mL |
| CA724 | 6.900 | 7.215 | U/mL |
| CEA | 5.000 | 4.690 | ng/mL |
| CYFRA | 3.300 | 2.730 | ng/mL |
| NSE | 16.300 | 17.135 | ng/mL |

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| **Biomarkers** | **NSCLC** | |  | **SCLC** | |
| **Metastasis** | **Non-metastasis** | **Metastasis** | **Non-metastasis** |
| CA125 | 169 | 203 |  | 61 | 52 |
| CA153 | 154 | 183 |  | 60 | 52 |
| CA199 | 170 | 204 |  | 60 | 54 |
| CA724 | 73 | 111 |  | 22 | 25 |
| CEA | 185 | 214 |  | 63 | 55 |
| CYFRA | 90 | 131 |  | 25 | 28 |
| NSE | 89 | 131 |  | 26 | 30 |

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| **Disease** | **Exposure** | **# of studies** | **Publications** |
| Renal cell carcinoma | Chronic Kidney Disease | 4 |  |
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