RISK FACTORS AND DIAGNOSIS OF KIDNEY STONE

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https://doi.org/10.5281/zenodo.15515734

Abstract. *Kidney stone affect 15-18% of the population in industrialized countries. The average life time risk of stone formation has been reported in the range of 7-13%. Recurrent stone formation is a common part of the medical care of patients with stone diseases. The aetiology of this disorder is multi factorial and is strongly related to dietary lifestyle habits or practices. Increased rates of hypertension, diabetes and obesity which are linked to nephrolithiasis, also contribute to an increase in stone formation. Hence, this study was undertaken to find out the prevalence among kidney stone patients. Also to find out the risk factors influencing the development of kidney stones especially Family history, inadequate fluid intake, Stress, Over weight and Obesity, Dietary habits and lifestyle modifications, association with other diseases (diabetes, hypertension).*

Keywords: *Kidney stone, risk factors.*

INTRODUCTION

Kidney stones, one of the most painful of the urologic disorders, are not a product of modern life. Unfortunately, kidney stones are one of the most common disorders of the urinary tract. A large number of people are suffering from urinary stone problem all over the globe. Kidney stones, which are solid crystals that form from dissolved minerals in urine, can be caused by both environmental and metabolic problems. Calcium oxalate and/or phosphate stones account for almost 80% of all renal stones observed in economically developed countries. Kidney stones are quite common and usually affect people who are between 35 and 65 years of age. They affect men more than women. It is estimated that renal colic (severe pain caused by a kidney stone) affects about 13-25% of men, and 5-8% of women. In India, 15% of the population is expected to have urinary stones, out of which 65% may end up with loss of kidneys or renal damage. Recurrent stone formation is a common problem with all types of stones and therefore an important part of the medical care of patients with stone disease.

In most countries with a relatively high incidence of renal calculi due to climate, diet habits, local geology with hydro mineralogy and sanitation by affecting geo minerology. Rising global temperatures could lead to an increase in kidney stones. Dehydration has been linked to stone disease, particularly in warmer climates, and global warming will exacerbate this effect. The correlation between increased environmental temperature and increased number of stone events supports the conclusion that global warming has an impact on the development of stones. As a result, the prevalence of stone disease may increase, along with the costs of treating the condition. The researchers discovered that stone formers had a 65% greater risk of developing chronic kidney disease (CKD) and a 45% increased risk of developing end-stage renal disease (ESRD), the most severe form of CKD.

Diet may have a significant impact on the incidence of urinary stones. The incidence has been steadily increasing, paralleling the rise in other diseases associated with the so called ‘Western diet’. Being obese (higher BMI) and experiencing weight gain have been associated with stone risk among men and women. Diet and fluid intake may be important factors in the development of urinary stones. As per capita income increases, the average diet changes, with an increase in saturated and unsaturated fatty acid; an increase in animal protein and sugar; and a

decrease in dietary fibre, vegetable protein and unrefined carbohydrates. Increased animal protein intake, lower potassium intake, lower fluid intake were recently identified to higher stone risk.

Clinical diagnosis of ureteric colic

Ureteric colic is classically among the most painful of emergency presentations. Typically, pain of varying intensity is felt in the flank and radiates towards the groin. When the stone is lodged distally in the ureter (ureterovesical junction), there is no flank pain. Low-grade or intermittent flank pain can occur with stones in the renal pelvis. However, flank pain is not a specific symptom of ureteric calculi. In patients with acute flank pain referred for UHCT, ureteric stones are found in 38–75% of examinations. The presence or absence of haematuria is not sufficiently sensitive or specific for the diagnosis of ureteric calculi. In 250 patients with flank pain, kidney stones on UHCT and concurrent urine testing, the sensitivity of haematuria for kidney stones was 91% and specificity %32. Of patients with flank pain but no haematuria, 24% had a stone. Eight of 20 with proven non-renal abdominal pain had haematuria. In a prospective study of 300 patients with acute flank pain, UHCT and concurrent urine testing, haematuria had a positive predictive value (PPV) of 65%, negative predictive value (NPV) of 75% and accuracy of 65% in predicting stone disease. In a retrospective review of UHCT, reports of 1000 patients with acute flank pain and concurrent urine microscopy, haematuria had a sensitivity of 87%, specificity of 51%, PPV of 75% and NPV of 68% for the presence of kidney stones. Fever suggests either a separate diagnosis of urinary tract infection or coexisting urinary tract infection.

CONCLUSION

In this study, we could establish a significant relationship between family history, diet and life style modifications, low fluid intake, obesity are the major factors play a role in development of renal calculi. We also found a significant relationship between patients associated with diabetes mellitus, hypertension and renal calculi. Life style changes helps to reduce recurrent stone disease. Renal calculi can be prevented by the most important thing is to drink plenty of water daily the goal should be to urinate from two to four litters per day make sure you avoided getting dehydrated, there are no specific dietary recommendation until a stone from your system has been analysed. After analysis diet can be evaluated and changes recommended.

REFERENCES

1. Bahromov Bekzod Shavkatovich. (2025). UROLITHIASIS: EPIDEMIOLOGY AND RISK FACTORS. https://doi.org/10.5281/zenodo.15070401
2. ANESTHESIOLOGICAL CARE AND INTENSIVE CARE OF GERONTOLOGICAL PATIENTS IN UROLOGY. (2025). *International Journal of Medical Sciences*, *5*(02), 381-384. https://doi.org/10.55640/
3. SOME PROBLEMS OF UROLOGY IN NEPHROLOGY. (2024). *International Journal of Medical Sciences*, *4*(12), 127-130. https://doi.org/10.55640/
4. PREVENTION OF INTRAOPERATIVE COMPLICATIONS OF ENDOVIDEOSURGICAL INTERVENTIONS IN UROLOGY. (2024). *International Journal of Medical Sciences*, *4*(11), 292-295. https://doi.org/10.55640/
5. ПУТИ УЛУЧШЕНИЯ КАЧЕСТВА НЕОТЛОЖНОЙ ПОМОЩИ БОЛЬНЫМ УРЕТЕРОЛИТИАЗОМ. (2024). *International Journal of Medical Sciences*, *4*(10), 135-138. https://doi.org/10.55640/

6. Bahromov Bekzod Shavkatovich. (2024). Urinary Tract Infection Gonorrhea. *SCIENTIFIC JOURNAL OF APPLIED AND MEDICAL SCIENCES*, *3*(5), 515–517. Retrieved from https://sciencebox.uz/index.php/amaltibbiyot/article/view/10804
7. Shavkatovich B. B. . (2024). Urinary Tract Infections. *Research Journal of Trauma and Disability Studies*, *3*(4), 249–251. Retrieved from https://journals.academiczone.net/index.php/rjtds/article/view/2602
8. Bahromov Bekzod Shavkatovich. (2025). PROSTATE CANCER: EPIDEMIOLOGY, RISK FACTORS, DIAGNOSIS. https://doi.org/10.5281/zenodo.15242564
9. Ergasheva, G. (2025). POLYCYSTIC OVARY SYNDROME: A COMPREHENSIVE OVERVIEW AND CURRENT TREATMENT APPROACHES. *Modern Science and Research*, *4*(4), 937-944.
10. Ergasheva, G. (2025). ACROMEGALY: A SEVERE NEUROENDOCRINE DISORDER WITH MULTISYSTEM MANIFESTATIONS. *Modern Science and Research*, *4*(3), 1123-1131.
11. Ergasheva, G. (2024). THE ROLE OF CORRECTIONAL PEDAGOGY IN ORGANIZING THE EDUCATION OF CHILDREN WITH DISABILITIES. *Ethiopian International Journal of Multidisciplinary Research*, *11*(06), 206-207.
12. Toxirovna, E. G. (2024). QALQONSIMON BEZ KASALLIKLARIDAN HASHIMOTO TIREODIT KASALLIGINING MORFOFUNKSIONAL O'ZIGA XOSLIGI. *Modern education and development*, *16*(7), 120-135.
13. Toxirovna, E. G. (2024). REVMATOID ARTRIT: BO'G'IMLAR YALLIG'LANISHINING SABABLARI, KLINIK BELGILARI, OQIBATLARI VA ZAMONAVIY DAVOLASH YONDASHUVLARI. *Modern education and development*, *16*(7), 136-148.
14. Эргашева, Г. Т. (2024). ОЦЕНКА КЛИНИЧЕСКОЙ ЭФФЕКТИВНОСТИ ОРЛИСТАТА У БОЛЬНЫХ ОЖИРЕНИЕМ И АРТЕРИАЛЬНОЙ ГИПЕРТЕНЗИЕЙ. *Modern education and development*, *16*(7), 92-105.
15. Ergasheva, G. T. (2024). THE SPECIFICITY OFAUTOIMMUNE THYROIDITIS IN PREGNANCY. *European Journal of Modern Medicine and Practice*, *4*(11), 448-453.
16. Эргашева, Г. Т. (2024). ИССЛЕДОВАНИЕ ФУНКЦИИ ЩИТОВИДНОЙ ЖЕЛЕЗЫ ПРИ ТИРЕОИДИТЕ ХАШИМОТО. *Modern education and development*, *16*(7), 106-119.
17. Toxirovna, E. G. (2024). GIPOFIZ ADENOMASINI NAZORAT QILISHDA KONSERVATIV JARROHLIK VA RADIATSIYA TERAPIYASINING UZOQ MUDDATLI SAMARADORLIGI. *Modern education and development*, *16*(7), 79-91.
18. ERGASHEVA, G. T. (2024). OBESITY AND OVARIAN INSUFFICIENCY. *Valeology: International Journal of Medical Anthropology and Bioethics*, *2*(09), 106-111.
19. Ergasheva, G. T. (2024). Modern Methods in the Diagnosis of Autoimmune Thyroiditis. *American Journal of Bioscience and Clinical Integrity*, *1*(10), 43-50.
20. Tokhirovna, E. G. (2024). COEXISTENCE OF CARDIOVASCULAR DISEASES IN PATIENTS WITH TYPE 2 DIABETES. *TADQIQOTLAR. UZ*, *40*(3), 55-62.

21. Toxirovna, E. G. (2024). DETERMINATION AND STUDY OF GLYCEMIA IN PATIENTS WITH TYPE 2 DIABETES MELLITUS WITH COMORBID DISEASES. *TADQIQOTLAR. UZ*, *40*(3), 71-77.
22. Toxirovna, E. G. (2024). XOMILADORLIKDA QANDLI DIABET KELTIRIB CHIQARUVCHI XAVF OMILLARINI ERTA ANIQLASH USULLARI. *TADQIQOTLAR. UZ*, *40*(3), 63-70.
23. Toxirovna, E. G. (2024). QANDLI DIABET 2-TIP VA KOMORBID KASALLIKLARI BO'LGAN BEMORLARDA GLIKEMIK NAZORAT. *TADQIQOTLAR. UZ*, *40*(3), 48-54.
24. Tokhirovna, E. G. (2024). MECHANISM OF ACTION OF METFORMIN (BIGUANIDE) IN TYPE 2 DIABETES. *JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH*, *3*(5), 210-216.
25. Tokhirovna, E. G. (2024). THE ROLE OF METFORMIN (GLIFORMIN) IN THE TREATMENT OF PATIENTS WITH TYPE 2 DIABETES MELLITUS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *4*(4), 171-177.
26. Эргашева, Г. Т. (2024). Эффект Применения Бигуанида При Сахарным Диабетом 2 Типа И Covid-19. *Research Journal of Trauma and Disability Studies*, *3*(3), 55-61.
27. Toxirovna, E. G. (2024). QANDLI DIABET 2 TUR VA YURAK QON TOMIR KASALLIKLARINING BEMOLARDA BIRGALIKDA KECHISHI. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 202-209.
28. Эргашева, Г. Т. (2024). СОСУЩЕСТВОВАНИЕ ДИАБЕТА 2 ТИПА И СЕРДЕЧНО-СОСУДИСТЫХ ЗАБОЛЕВАНИЙ У ПАЦИЕНТОВ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 219-226.
29. Эргашева, Г. Т. (2024). СНИЖЕНИЕ РИСКА ОСЛОЖНЕНИЙ У БОЛЬНЫХ САХАРНЫМ ДИАБЕТОМ 2 ТИПА И СЕРДЕЧНО-СОСУДИСТЫМИ ЗАБОЛЕВАНИЯМИ. *Образование Наука И Инновационные Идеи В Мире*, *38*(7), 210-218.
30. Tokhirovna, E. G. (2024). CLINICAL AND MORPHOLOGICAL ASPECTS OF THE COURSE OF ARTERIAL HYPERTENSION. *Лучшие интеллектуальные исследования*, *12*(4), 234-243.
31. Tokhirovna, E. G. Studying the Causes of the Relationship between Type 2 Diabetes and Obesity. *Published in International Journal of Trend in Scientific Research and Development (ijtsrd)*, *ISSN*, 2456-6470.
32. Toxirovna, E. G. (2024). ARTERIAL GIPERTENZIYA KURSINING KLINIK VA MORFOLOGIK JIHATLARI. *Лучшие интеллектуальные исследования*, *12*(4), 244-253.
33. Эргашева, Г. Т. (2024). НОВЫЕ АСПЕКТЫ ТЕЧЕНИЕ АРТЕРИАЛЬНОЙ ГИПЕРТОНИИ У ВЗРОСЛОГО НАСЕЛЕНИЕ. *Лучшие интеллектуальные исследования*, *12*(4), 224-233.
34. Эргашева, Г. Т. (2024). ФАКТОРЫ РИСКА РАЗВИТИЯ САХАРНОГО ДИАБЕТА 2 ТИПА. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *36*(5), 70-74.
35. Эргашева, Г. Т. (2024). ОСЛОЖНЕНИЯ САХАРНОГО ДИАБЕТА 2 ТИПА ХАРАКТЕРНЫ ДЛЯ КОГНИТИВНЫХ НАРУШЕНИЙ. *TADQIQOTLAR. UZ*, *30*(3), 112-119.

36. Эргашева, Г. Т. (2023). Исследование Причин Связи Диабета 2 Типа И Ожирения. *Research Journal of Trauma and Disability Studies*, *2*(12), 305-311.
37. Tokhirovna, E. G. (2024). Risk factors for developing type 2 diabetes mellitus. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *36*(5), 64-69.
38. Toxirovna, E. G. (2024). QANDLI DIABET 2-TUR VA O'LIMNI KELTIRIB CHIQARUVCHI SABABLAR. *Лучшие интеллектуальные исследования*, *14*(4), 86-93.
39. Tokhirovna, E. G. (2023). Study of clinical characteristics of patients with type 2 diabetes mellitus in middle and old age. *Journal of Science in Medicine and Life*, *1*(4), 16-19.
40. Toxirovna, E. G. (2024). GIPERPROLAKTINEMIYA KLINIK BELGILARI VA BEPUSHTLIKKA SABAB BO'LUVCHI OMILLAR. *Лучшие интеллектуальные исследования*, *14*(4), 168-175.
41. Toxirovna, E. G. (2023). QANDLI DIABET 2-TUR VA SEMIZLIKNING O'ZARO BOG'LIQLIK SABABLARINI O'RGANISH. *Ta'lim innovatsiyasi va integratsiyasi*, *10*(3), 168-173.
42. Saidova, L. B., & Ergashev, G. T. (2022). Improvement of rehabilitation and rehabilitation criteria for patients with type 2 diabetes.
43. Эргашева, Г. Т. (2023). Изучение Клинических Особенностей Больных Сахарным Диабетом 2 Типа Среднего И Пожилого Возраста. *Central Asian Journal of Medical and Natural Science*, *4*(6), 274-276.
44. Toxirovna, E. G. (2023). O'RTA VA KEKSA YOSHLI BEMORLARDA 2-TUR QANDLI DIABET KECHISHINING KLINIKO-MORFOLOGIK XUSUSIYATLARI. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *33*(1), 164-166.
45. Ergasheva, G. T. (2022). QANDLI DIABET BILAN KASALLANGANLARDA REABILITATSIYA MEZONLARINI TAKOMILASHTIRISH. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, *2*(12), 335-337.
46. Ergasheva, G. (2024). METHODS TO PREVENT SIDE EFFECTS OF DIABETES MELLITUS IN SICK PATIENTS WITH TYPE 2 DIABETES. *Журнал академических исследований нового Узбекистана*, *1*(2), 12-16.
47. ГТ, Э., & Саидова, Л. Б. (2022). СОВЕРШЕНСТВОВАНИЕ РЕАБИЛИТАЦИОННО-ВОССТАНОВИТЕЛЬНЫХ КРИТЕРИЕВ БОЛЬНЫХ С СД-2 ТИПА. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, *2*(12), 206-209.
48. Toxirovna, E. G. (2025). YURAK-QON TOMIR TIZIMI KASALLIKLARIDA BEMORLAR PARVARISHINING O'ZIGA XOSLIGI. *Modern education and development*, *20*(2), 38-46.
49. Ergasheva, G. (2025). PECULIARITIES WHEN ACCOMPANIED BY HYPOTHYROIDISM AND IODINE DEFICIENCY IN PATIENTS WITH ADRENAL GLAND PATHOLOGY. *Modern Science and Research*, *4*(2), 1133-1140.
50. Tokhirovna, E. G. (2024). Relationship of the Functional States of the Thyroid and the Reproductive System in Women under Iodine Deficiency. *Journal of Science in Medicine and Life*, *2*(6), 89-94.

51. Хафизова, М. Н., & Халимова, Ю. С. (2024). МОТИВАЦИОННЫЕ МЕТОДЫ ПРИ ОБУЧЕНИИ ЛАТЫНИ И МЕДИЦИНСКОЙ ТЕРМИНОЛОГИИ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *55*(2), 165-171.
52. Халимова, Ю. С., & Хафизова, М. Н. (2024). ОСОБЕННОСТИ СОЗРЕВАНИЕ И ФУНКЦИОНИРОВАНИЕ ЯИЧНИКОВ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *55*(2), 188-194.
53. Халимова, Ю. С., & Хафизова, М. Н. (2024). КЛИНИЧЕСКИЕ АСПЕКТЫ ЛИЦ ЗЛОУПОТРЕБЛЯЮЩЕЕСЯ ЭНЕРГЕТИЧЕСКИМИ НАПИТКАМИ. *TADQIQOTLAR. UZ*, *40*(5), 199-207.
54. Халимова, Ю. С., & Хафизова, М. Н. (2024). кафедра Клинических наук Азиатский международный университет Бухара, Узбекистан. *Modern education and development*, *10*(1), 60-75.
55. Халимова, Ю. С., & Хафизова, М. Н. (2024). КЛИНИЧЕСКИЕ ОСОБЕННОСТИ ЗАБОЛЕВАНИЙ ВНУТРЕННИХ ОРГАНОВ У ЛИЦ, СТРАДАЮЩИХ АЛКОГОЛЬНОЙ ЗАВИСИМОСТЬЮ. *TADQIQOTLAR. UZ*, *40*(5), 240-250.
56. Халимова, Ю. С., & Хафизова, М. Н. (2024). МОРФО-ФУНКЦИОНАЛЬНЫЕ И КЛИНИЧЕСКИЕ АСПЕКТЫ ФОРМИРОВАНИЯ КОЖНЫХ ПОКРОВОВ. *Modern education and development*, *10*(1), 76-90.
57. Khalimova, Y. S. (2024). Features of Sperm Development: Spermatogenesis and Fertilization. *American Journal of Bioscience and Clinical Integrity*, *1*(11), 90-98.
58. Salokhiddinovna, K. Y., & Nematilloevna, K. M. (2024). MODERN MORPHOLOGY OF HEMATOPOIETIC ORGANS. *Modern education and development*, *16*(9), 50-60.
59. Khalimova, Y. (2025). MORPHOLOGY OF PATHOLOGICAL FORMS OF PLATELETS. *Modern Science and Research*, *4*(2), 749-759.
60. Salokhiddinovna, K. Y., & Nematilloevna, K. M. (2025). MODERN MORPHOLOGY OF HEMATOPOIETIC ORGANS. *Modern education and development*, *19*(2), 498-508.
61. Халимова, Ю. С., & Хафизова, М. Н. (2025). СОВРЕМЕННАЯ МОРФОЛОГИЯ КРОВЕТВОРНЫХ ОРГАНОВ. *Modern education and development*, *19*(2), 487-497.
62. Халимова, Ю. С., & Хафизова, М. Н. (2025). ГИСТОЛОГИЧЕСКАЯ СТРУКТУРНАЯ МОРФОЛОГИЯ НЕФРОНОВ. *Modern education and development*, *19*(2), 464-475.
63. Saloxiddinovna, X. Y., & Nematilloevna, X. M. (2025). NEFRONLARNING GISTOLOGIK TUZILISH MORFOLOGIYASI. *Modern education and development*, *19*(2), 509-520.
64. Saloxiddinovna, X. Y., & Ne'matilloyevna, X. M. (2025). QON YARATUVCHI A'ZOLARNING ZAMONAVIY MORFOLOGIYASI. *Modern education and development*, *19*(2), 476-486.
65. Xalimova, Y. (2025). MODERN CONCEPTS OF BIOCHEMISTRY OF BLOOD COAGULATION. *Modern Science and Research*, *4*(3), 769-777.
66. Xalimova, Y. (2025). JIGAR SIRROZIDAGI GEMATOLOGIK TADQIQOTLAR. *Modern Science and Research*, *4*(4), 409-418.
67. Халимова, Ю. (2025). ГЕМАТОЛОГИЧЕСКИЕ ИССЛЕДОВАНИЯ ПРИ ЦИРРОЗЕ ПЕЧЕНИ. *Modern Science and Research*, *4*(4), 419-428.
68. Xalimova, Y. (2025). HEMATOLOGICAL STUDIES IN LIVER CIRRHOSIS. *Modern Science and Research*, *4*(4), 1066-1074.