PURULENT WOUNDS IN PATIENTS WITH THYROTOXICOSIS ON THE BACKGROUND OF DIABETES MELLITUS

[1]O. M. Kurbanov, [2]T. Sh. Boltaev
Bukhara State Medical Institute

ANNOTATION

A retrospective analysis of the clinical course of purulent wounds concomitant with thyrotoxicosis against the background of diabetes mellitus (DM) and an assessment of protein metabolism disorders in this category of patients was carried out. In 104 (16.8%) of 619 patients who received treatment at the clinical base of BukhGosMI, thyrotoxicosis was diagnosed in combination with diabetes mellitus. As a result of the study, in patients with purulent wounds concomitant with thyrotoxicosis against the background of diabetes, a pronounced violation of protein metabolism is observed, which negatively affects the course of the wound process. Timely correction of hormonal disorders in thyrotoxicosis and hyperglycemia leads to better treatment results. Such patients should be treated in conjunction with an endocrinologist.

Key words: purulent wounds, diabetes mellitus, thyrotoxicosis, clinical course, treatment.

RELEVANCE

The problem of studying the pathogenesis and treatment of wounds and wound infections against the background of diabetes mellitus is one of the most important sections of scientific and practical medicine. The treatment of wounds and wound infections is sufficiently reflected in the scientific works of many scientists (2; 5). However, the course of purulent wounds against the background of diabetes mellitus and accompanying thyrotoxicosis is one of the urgent tasks of modern purulent surgery. In recent years, cases of combined pathology of thyrotoxicosis with diabetes have become more frequent in patients with purulent surgical diseases (7). In this regard, the course of the wound process in this category of patients is important. The complex pathogenetic mechanism of diabetes development is systemic. On the one hand, microcirculation disorders, ischemia, tissue hypoxia, the development of oxidative disorders in cells in diabetes mellitus (8; 10), and on the other hand, hemodynamic disorders, suppression of the immune system and metabolic disorders in thyrotoxicosis negatively affect the outcome of purulent surgical diseases. (1; 4; 11). Decreased resistance to infection and the frequent occurrence of pyoinflammatory diseases in diabetic patients are caused by disorders of immunological and plastic processes in tissues. This is based on insulin deficiency, which has an active effect on all metabolic processes (5; 8; 10). All this leads to a slowdown in regeneration and reparative processes.

The thyroid gland is an organ of the endocrine system and, among other functions, performs the function of maintaining homeostasis in the body. In diseases of the thyroid gland, hormonal imbalance occurs (3; 6). The effect of thyroid hormones on protein metabolism depends on the concentration of hormones. In low concentrations, they have an anabolic effect on protein metabolism, increase protein synthesis and inhibit their breakdown, causing a positive nitrogen balance. In high concentrations, thyroid hormones have a strong catabolic effect on protein metabolism, causing increased protein breakdown and inhibition of their synthesis (9; 121).

Many questions remain regarding the mechanism of the effect of both diseases on the course of the wound process.

The solution of these problems will contribute to the achievement of the best results in the treatment of purulent wounds in the combined pathology of thyrotoxicosis and diabetes mellitus. Proceeding from this, the aim of the

study: Improvement of the results of treatment of purulent wounds in patients with combined pathology of thyrotoxicosis with diabetes mellitus, by studying disorder of protein metabolism.

MATERIALS AND METHODS

In the clinical base of the Bukh State Medical Institute, for the period from 2009 to 2019, 619 patients with purulent wounds suffering from various forms of diabetes mellitus were hospitalized. Of these, 104 (16.8%) patients were diagnosed with thyrotoxicosis. The age of the patients ranged from 20 to 64 years, with an average age of 42 years. Men-364 (58.8%), women-255 (41.2%). The examined patients were divided into the following two groups I, group - 515 patients with purulent wounds of various localizations on the background of diabetes mellitus without thyrotoxicosis. Group II - 104 patients with purulent wounds on the background of diabetes mellitus and thyrotoxicosis, 47 men (45.2%), 57 women (54.8%).

The prognostic coefficient (PC) of the course of the wound process was determined by the formula of M.F. Mazurik (1984):

$$PC = \frac{\text{TPP (total plasma protein)}}{\text{TPWD (total protein of wound discharge)}}$$

With a decrease in PC below the norm (1.2-1.3), the patients were transfused with protein preparations, taking into account the indications.

In all patients in dynamics, pH-metry of wound exudate was performed.

Mathematical processing of the results obtained was carried out by the methods of variation statistics. The significance of the differences was determined using the Student's test. Differences were considered significant at $P < 0.05$. The data obtained were processed using standard statistical methods of correlation analysis. As can be seen from Table 1, in the first group there were 515 (83.2%) patients, of which 307 (59.6%) were men and 208 (40.4%) were women aged 19 to 80 years (the average age was 48, 4 ± 2.1 years). In group II - 47 (45.2%) and 57 (54.8%) aged 19 to 75 years (the average age was 49.4 ± 1.8 years),

Table. one.

Characteristics of patients by sex and age

groups	Age										total
	till 19 y		20-44 y		45-59 y		60-75 y		75 y and older		
	M	F	M	F	M	F	M	F	M	F	
I	14	8	112	81	143	92	23	18	15	9	515
II	2	3	15	17	16	21	11	12	3	4	104
Total	27 (4,4%)		225(36,3%)		272(44%)		64 (10,3%)		31 (5%)		619

Most of the patients (74.4%) were at the most working age. (from 20 to 59 years old). At the same time, the following types of purulent surgical diseases were noted: Abscesses-127 (20.5%), phlegmon of various localizations 104 (16.8%), purulent diseases of soft tissues of various localizations (panaritium, phlegmon of the hand and foot, phlegmon of the perineum, hydradenitis, purulent lymphadenitis, festering cyst of the coccyx, festering echinococcus of the liver) - 302 (48.7%), postoperative purulent wounds - 86 (13.4%) patients. All patients with purulent surgical diseases underwent traditional methods of treatment - opening a purulent focus, debridement of the wound, and applying a water-soluble ointment under a bandage. The scope of surgical interventions consisted of opening, sanitation and drainage of purulent cavities under general anesthesia, taking into account the anatomical location, size and stage of the purulent process. All patients underwent a generally accepted complex of examination: clinical blood and urine tests, biochemical blood test, coagulogram, blood group and Rh factor, plain chest fluoroscopy.

RESULTS AND DISCUSSION

Decreased resistance to infection and the frequent occurrence of pyoinflammatory diseases in diabetic patients are caused by disorders of immunological and plastic processes in tissues. Hyperglycemia and insulin deficiency have an active effect on metabolic processes that lead to a violation of protein metabolism. Of the total number of patients (619), diabetes of varying severity was identified. So, of these, 214 (34.5%) patients with mild diabetes mellitus, 315 (50.8%) moderate severity patients, and 90 (14.5%) severe patients with complications. Diabetic history revealed that out of 619 patients diabetes mellitus was diagnosed for the first time in 412 (66.5%) patients, 207 (33.4%) patients had 4 or more years, the average duration of the disease was 11 years.

Severity	Glycemia (mmol / L)
Mild degree (214)	8,3 – 9,9
Средняя (315)	10,1 - 16,7
Severe (90)	16,7 – 20,5

Purulent surgical diseases associated with diabetes mellitus are often asymptomatic and the cause is unclear. They can be single, multiple, limited, extensive and widespread.

All patients complained of hyperthermia from 38 to 41 degrees, chills, general weakness. Many were worried about the pain in the area of the purulent focus.

Along with clinical manifestations, the indicators of hyperglycemia were analyzed. At the same time, these patients were found to have persistent hyperglycemia and glucosuria. Patients with a mild form of the disease did not develop glucosuria. In severe diabetes mellitus, the development of a purulent process was accompanied by an increase in temperature to 39-40 C. In some patients, the consciousness was darkened. The purulent process proceeded with high hyperglycemia, expressed by glucosuria, ketonuria. There were also pronounced functional disorders of the kidneys and liver, a significant increase in the number of leukocytes in the peripheral blood and an increase in ESR. The indicators of the clinical analysis of blood did not always correspond to morphological changes: in 18 patients (43%) the leukocytosis was below 9.0 × 10 g / l, and in 14 patients (32%) the percentage of stab forms did not exceed 10, which in most cases was observed in elderly and senile patients and, possibly, this is due to the unresponsiveness of the body during this period of life and due to the presence of diabetes mellitus. The maximum values of these parameters in other patients reached: leukocytosis - 26.4 × 10 g / l, metamyelocytes - 2%, stab - 32%, toxic granularity ++. Among biochemical parameters, the most frequently increased parameters were creatinine, urea, ALT and AST - in 27 patients (49%). The total bilirubin levels increased in 113 patients (23.6%) to 25.8 μmol / L. All this leads to a slowdown in regeneration and reparative processes in the wound. Clinically, when diabetes is combined with thyrotoxicosis, the complaints of patients, in

addition to those associated with the underlying pathology, were palpitations, sometimes a feeling of lack of air, stuck in the throat, insomnia, neurosis, weakness and rapid fatigue. We divided the patients into three groups according to the clinical course: mild thyrotoxicosis, moderate and severe thyrotoxicosis with combined pathology with purulent surgical diseases and diabetes mellitus.

With a severe degree of goiter, patients with purulent surgical diseases showed strong excitability of the nervous system, severe irritability. Complete loss of performance. Weight loss by 50%, tachycardia, pulse more than 120 beats per minute, arrhythmia. Basal metabolism increases by more than 60%, heart failure, paroxysmal tachycardia. Liver damage. Psychoses, delusions and hallucinations. Severe ophthalmopathy. Big difference in systolic and diastolic pressure, the difference is more than 40%. Along with clinical manifestations, the data of hormonal tests of the thyroid gland (Table 2) in patients with purulent surgical diseases associated with endocrine pathologies were analyzed. At the same time, in patients with a mild degree of thyrotoxicosis, there were no particularly pronounced hormonal disorders. However, with moderate goiter, the decrease in TSH (thyroid-stimulating hormone) activity was accompanied by an increase in the level of T-3 (triiodothyronine) and T-4 (thyroxine). An increase in the activity of antithyroid peroxidase (Anti TPO) in these patients indicates an autoimmune nature of the disease, i.e. the immune system is suppressed with thyrotoxicosis. More pronounced hormonal disorders were observed in severe goiter with thyrotoxicosis. Thus, with a decrease in TSH activity, the level of thyroid hormones T-3 and T-4 increased sharply, while an increase in the activity of Anti TPO was observed.

Severity	Clinics	Lab. tests
Mild(67)	Nervous irritability, irritability, sweating. Working capacity is reduced, constant tachycardia, pulse up to 100 beats per minute. Weight loss by 10-15%. Metabolism increases by 30%. A / D does not change or is slightly elevated, no ophthalmopathy.	T-3 free; 1.5 - 3.0 ng / dl T-3 gen: 0.8 - 2.5 ng / dl T-4 free: 0.8 -2.5 ng / dl T-4 total: 4.4 - 11.0 g / dl TSH: 0.3 - 4.0 mmE / l Anti TPO: 0 - 34 U / ml.
Average (31)	Severe nervous irritability, irritability, severe sweating. Working capacity is reduced, constant tachycardia, pulse up to 120 beats per minute. Weight loss by 20% or more. Metabolism increases by 60%. A / D rises 140/60 mm hrtst rises. Ophthalmopathy.	T-3 free; 3.0 - 3.5 ng / dL T-3 gen: 2.5 - 3.0 ng / dl T-4 free: 2.5 -3.0 ng / dl T-4 gross: 11.0 - 11.5 ng / dl TSH: 0.1 - 0.2 mmE / l Anti TPO: 34 - 36 U / ml.
Тяжёлой степени (6)	Strong excitability of the nervous system, severe irritability, severe sweating Complete loss of working capacity, reduced, constant tachycardia, pulse more than 120 beats per minute, arrhythmia, heart failure, paroxysmal tachycardia. Liver damage. Psychoses, hallucinations. Weight loss by 50%, basal metabolism increases by more than 60%. Difference between systolic and diastological. D is more than 40%. Severe ophthalmopathy.	Т-3 своб; боле 3,5 нг/дл Т-3 общ: более 3,0 г/дл Т-4 своб: более 3,0 г/дл Т-4 общ:более 11,5 г/дл ТТГ: 0,03 и ниже ммЕ/л Anti TPO: above 36 IU / ml.

All the disorder aggravated the course of the wound process, which was manifested in the slowing down of the wound clearing time, the transition of the wound process from the first to the second phase.

These disorders were aggravated by the combination of diabetes mellitus with thyrotoxicosis, so with an increase in TSH, total protein and total bilirubin decrease ($r = -0.3$, $p < 0.05$), and with an increase in T4 and toxins in the blood (urea and creatinine: $r = 0.3$ $p < 0.05$, $r = 0.4$, $p < 0.05$, respectively). In general, the data

obtained correspond to the main links in the pathogenesis of both diseases (diabetes mellitus and thyrotoxicosis) in Table 3. Analysis of the data revealed in patients both direct and inverse dependence of metabolic parameters on the level of hormones TSH and T4 in the blood, which corresponds to the literature data. There is a direct relationship between the level of T4 and indicators of protein metabolism (urea, creatinine, total protein), and an inverse relationship with TSH.

Table. 3.

Comparative dynamics of PC indicators according to Mazurik (protein + exudates) and wound healing in 1-2 groups of patients

Group of sick	General Bel.in blood g / l	Bel.exudate. g / l	PC according to M.F. Mazurik	day transition II	day Transition III
I-gr(515)	68,1±2,8*	56,9±1,8	1,1±0,02*	6	13
II-gr (104)	57,5±3,1	56,5±0,02*	1,0±0,03*	9	17

Note: * - p <0.05 - reliability indicator.

Thus, in persons suffering from thyrotoxicosis against the background of diabetes, significant changes in metabolism occur. In particular, this applies to indicators of carbohydrate metabolism (glucose), protein (urea, creatinine, total protein) and fat (cholesterol, HDL, LDL, weight loss). Such shifts can be explained primarily on the basis of the effect of thyroid hormones and hyperglycemia on metabolic processes in the body. Which in turn negatively affects the course of the wound process. This is mainly reflected in a slowdown in wound healing by 3.4 days than in patients with purulent wounds on the background of diabetes mellitus without thyrotoxicosis. The bases of II-group, suffering from thyrotoxicosis and diabetes mellitus, the total blood protein drops sharply to 57.5 g / l, and the loss of protein with exudate from the wound increases, which amounted to 56.5 g / l. Then, as in the I-gr compared with the II-gr, the level of these indicators is disturbed to a lesser extent. As a result, on the 6th day, the transition of the wound process to the second phase occurs, and on the 13th day, the transition to the third phase of healing occurs in the first group of patients. In the second group of patients suffering from diabetes and thyrotoxicosis at the same time, the timing of wound healing slows down. As you can see in the table, the transition to the second phase occurs on the 9th day, and the transition to the third phase of healing occurs on the 17th day. All this is due to the negative influence of both concomitant pathologies on the healing of the wound process, due to a violation of protein metabolism.

conclusions

1. Indicators characterizing blood protein and loss of protein with exudate from a wound according to Mazurik in patients with thyrotoxicosis against the background of diabetes mellitus are closely related to the levels of hyperglycemia and hormones TSH, T4 in the blood.

2. The timing of wound healing in patients with thyrotoxicosis on the background of diabetes is slower than in patients with purulent wounds concomitant with only one diabetes.

3. It is necessary to further develop ways of correcting protein metabolism disorders in patients with purulent wounds with thyrotoxicosis against the background of diabetes mellitus.

BIBLIOGRAPHY

1. Arslanbekova Abakhanum Chopanovna. The state of microcirculation in patients with thyroid diseases and their correction: dissertation of the candidate of medical sciences: 14.00.05 / Arslanbekova Abakhanum Chopanovna; [Place of defense: GOUVPO "Dagestan State Medical Academy"]. - Makhachkala, 2008 .-- 127 p .: ill.
2. Akhmedov R.M., Safoev B.B. Purulent - necrotic lesions of the lower extremities. Monography. 2010, p. 109.
3. Bagaturia.G.O; Combined surgical interventions for advanced thyroid cancer. Bulletin of surgery. 2009 No. 5s.31-34. G.O.Bagaturia.
4. Belcevich D.G. and (coauthors) Project: Clinical Guidelines of the Russian Association of Endocrinologists for the Diagnosis and Treatment of Nodular Goiter (new edition 2015). Endocrine Surgery. - 2015. - No. 1 - p. 15-21.
5. Bogun L.V. Infections in patients with diabetes mellitus. journal. " Diseases and antibiotics "№1. 2009 p. 31-35. Butyrskiy A.G., Khilko S.S., Vlakhov A.K., Bobkov O. V., Skoromny A.N., Fomochkin I.I., Grincescu A.E. Diagnostics and surgical treatment of diseases of the thyroid and parathyroid glands. Simferopol-2018 s. 31.
6. Kurbanov O.M., Sharopova M.S., Safoev B.B. PECULIARITIES OF THE COURSE OF PURULENT SURGICAL DISEASES IN ENDEMIC GOITER. journal Tibbiyotda yangi kun 2020. №2.p.532-535
7. Kurbanov OM Features of the course of purulent surgical diseases in diabetes mellitus. journal Tibbiyotda yangi kun 2020. No. 2.s.167-170.
8. Yakubovsky, S.V. G.G. Kondratenko, I.I. Popova The use of succinate-containing drugs in the complex treatment of patients with diffuse toxic goiter. // UO Belorus. state medical un-that. Clinical medicine. - 2014. - No. 8. - S. 50-53.
9. Safoev BB, Rakhimov A.Ya. Critical ischemia of the lower extremities and diabetic foot. Monograph. 2019 P.321.
10. 11 Brix T., Hansen P., Kyvik R. etal. Cigarette smoking and risk of clinically overt thyroid disease a population based twin case - control study // J. Endocrinol. Invest. - 1999. - Vol.22. - No. 6, Suppl. - P.22.
11. Diekman, M.J. Changes in plasma low-density lipoprotein and high-density lipoprotein cholesterol in hypo- and hyperthyroid patients are related to changes in free thyroxine, not to polymorphism in LDL receptor on cholesterol ester transfer protein genes / M.J. Diekman, N. Anghelescu, E. Endert et al. // J. Clin. Endocrinol, and Metabolism. - 2000. - Vol. 85 .-- P. 1857-1862.
12. NA Narzieva, N Hasanova Communicative competence as a pedagogical model in the classrooms Academicia: An International Multidisciplinary Research Journal 10(6), 78-81 June 2020
13. BT Shavkatovich, QO Maqsudovich, SM Sayfullayevna, NN Atakulovna. Recovery of purulent injuries on the background of a diffuse toxic goitar in combination with diabetes mellitus. International Engineering Journal For Research and Development 5 (9), p1-1018.12.2020.
14. NA Narzieva The concept of defined target technologies and their role in the educational process. Theoretical and Applied science science, issue 05, volume 85, p356-36028.05.20

15. AD Ahmedovna, NA Narzieva Main styles and methods of teaching speaking foreign languages to medical institutes. International Engineering Journal For Research & Development. SPECIAL ISSUE 5. P 4-4. 2020
16. Davlatova M.H. Aspectual variability of informatiobn culture in the history of the English language.-International Journal of Integrated Education, Volume3, Issue III,March 2020.-P.34-38
17. Davlatova, M. H. (2020). An Integrative history of Aspectual meanings. JournalNX-A Multidisciplinary Peer Reviewed Journal, Volume6, (4), 17-22.
18. Davlatova M.H. Variability of Aspectual Meanings in English.-European Journal of Research and Reflection in Educational Science, Volume.7 No.12.2019.-P.778-780
19. Davlatova M.H. An Integrative history of Aspectual meanings.-JournalNX-A Multidisciplinary Peer Reviewed Journal, Volume 6, ISSUE 4, Apr.-2020.-P.17-22
20. Давлатова, М.Х. The role of songs in learning English. / М.Х. Давлатова // Молодой ученый. – 2015. – №10. – С.1145-1147
21. Mukhayyo Hasanovna Davlatova. Lexico Semantic Structure and its Analysis on the Example of Verbs Journal NX- A Multidisciplinary Peer Reviewed Journal Volume 6, Issue 6, June. (2020) 189-192
22. МХ Давлатова. Этапы работы с видеотекстами на занятиях Английского языка.Международный научный журнал «Интернаука», - М., 2017,16-19
23. Nabiya Idrisovna, A., Maqsudovna, A. M., Abduraxmonova, S. D., &Raxmatovna, F. Z. (2020). Abilities to Express Lexical Units in Translation. International Journal of Psychosocial Rehabilitation, 24(1).
24. Sulaymonova, D. H. (2019). USING MUSIC AND SONG IN TEACHING FOREIGN LANGUAGES. Internationalscientificreview, (LXIV)
25. Abdullayeva, N. I. (2019). METHOD OF TEACHING ENGLISH IN TECHNICAL INSTITUTES. International scientific review, (LXIV).
26. Abdullayeva, N. I. (2019). DESCRIPTION AND EXPLANATION MATERIAL AND SPIRITUAL VIEW OF STUDENTS'CHARACTER IN THE WORLD LITERATURTE. In *EUROPEAN RESEARCH: INNOVATION IN SCIENCE, EDUCATION AND TECHNOLOGY* (pp. 29-31).
27. Nabiya Idrisovna, A., Maqsudovna, A. M., Abduraxmonova, S. D., & Raxmatovna, F. Z. (2020). Abilities to Express Lexical Units in Translation. *International Journal of Psychosocial Rehabilitation*, *24*(1)
28. Abdullayeva, N. I., Sulaymonova, D. H., & Fattoyeva, Z. R. (2019). Methods of teaching in foreign and nonspecific directions. European Journal of Business & Social Sciences, (7), 610-611.
29. Fattayeva, Z. R. (2019). MUSIC AND PRONUNCIATION. International scientific review, (LXIV).
30. Сулаймонова, Д. А. (2019). Основаные аспкты формирования лексических навыков студентов технических ВУЗОВ. International scientific review, (LXIV).
31. Сулаймонова, Д. А. (2019). Структура и содержание лексической компетенции при обучении русскому языку студентов технических ВУЗОВ. In EUROPEAN RESEARCH: INNOVATION IN SCIENCE, EDUCATION AND TECHNOLOGY (pp. 71-74).
32. Idrisovna, A. N. (2020). STUDENTS'CHARACTER AND PORTRAIT IN ENGLISH LITERATURE. International Engineering Journal For Research & Development, 5(8), 5-5.

33. Sulaymonova, D. H. (2019). USING MUSIC AND SONG IN TEACHING FOREIGN LANGUAGES. International scientific review, (LXIV)
34. Abdullayeva, N. I. (2019). METHOD OF TEACHING ENGLISH IN TECHNICAL INSTITUTES. International scientific review, (LXIV).
35. 32.SharopovaSh.Q. Formirovanie professionalьnoy kompetentsii u studentov neyazыkovogo VUZa(2019) «Mug'allim həm uzliksiz Bilimletdirio'»,№4 Nөkis , 11-14
36. Sharopova, S. K. (2018). PECULIARITIES OF ARTICLE OMISSION IN MODERN ENGLISH LANGUAGE. Теория и практика современной науки, (4), 594-596.
37. Ураев.Д.С. (2020). ВЫРАЖЕНИЕ ВЕРЫ В ОГОНЬ И ЗОЛУ В ВОЛШЕБНОЕ ИСЦЕЛЕНИЕ НА НАРОДНЫХ ПЕСНЯХ. European Scientific Conference, 2020
38. Z.T Safarova, D.S Urayeva. (2020) THE SIMILAR FEATURES IN DEPICTION OF ORPHANS'LIFE IN CHILDREN'S ADVENTURE NOVELS.- Theoretical & Applied Science, 2020