



Diabetics with stage V chronic kidney disease (CKD) on hemodialysis (HD) are considered as “difficult patients”, because of problems with creation of the vascular access. There is controversy regarding the results and recommendations for preparation of the vascular access in these patients” Gołębiowski et al (2015).

Reference:

Gołębiowski, T., Weyde, W., Kuzstal, M., Porażko, T., Augustyniak-Bartosik, H., Madziarska, K., Krajewska, M., Koniński, P., Sydor, A., Letachowicz, K. and Klinger, M. (2015) Vascular access in diabetic patients. Are these patients “difficult”? *Postępy Higieny I Medycyny Doświadczalnej*. 69(0), p.913-7.

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Abstract:

Diabetics with stage V chronic kidney disease (CKD) on hemodialysis (HD) are considered as “difficult patients”, because of problems with creation of the vascular access. There is controversy regarding the results and recommendations for preparation of the vascular access in these patients. The aim of this retrospective study was to evaluate the results of creating different types of arteriovenous fistula (AVFs) in consecutive series of patients starting dialysis treatment. The analysis was performed in 741 patients (385 females and 356

males), average age  $61.4 \pm 7$  years, who started dialysis treatment in our department between January 2005 and December 2012. Native AVFs were created in all patients. No patients received an AVF requiring synthetic graft material. The number of patients with diabetic nephropathy was 166 (22.4%). Among them, 30 (18%) had type 1 diabetes and 136 (82%) type 2. In this group the occurrence of calcification in the forearm artery was estimated on the basis of physical examination, Allan's test, Doppler ultrasound and forearm X-ray. In a subgroup of patients with atherosclerotic changes in the arterial system the frequency of failed AVFs was analyzed. These results were compared with the group without diabetes. The number of procedures necessary for successful AVF creation and type of access was counted in both groups. The assessment of the procedure frequency and AVF location in diabetic and in non-diabetic patients was made by  $\chi^2$  test with Yates correction. In the group of 166 patients with diabetes, in 100 cases (60%) atherosclerotic changes in forearm arteries were observed. In a subgroup of 30 patients with type 1 diabetes atherosclerosis was observed in 17 adults (57%). In this subgroup creation of a suitable forearm AVF in the first procedure in 9 patients was possible and in the other 8 cases the atherosclerotic changes necessitated repeated procedures and were an important obstacle to create the AVF. In the subgroup of 136 patients with type 2 diabetes, atherosclerosis in the forearm artery was observed in 83 cases (61%). In this subgroup the creation of a native AVF was possible in 40 patients during the first procedure and in 43 cases additional intervention was needed, but only in 8 cases was atherosclerosis the cause of fistula failure. Generally, among 166 patients only in 16 cases (10%) did atherosclerosis present an important obstacle for AVF creation, but the number of necessary procedures to create one functioning AVF was significantly greater in this population ( $2$  v  $2.7$ ,  $p=0.0001$ ). A functioning AVF in patients with diabetes was found significantly frequently in the arm localization in comparison to non-diabetic patients ( $4.3$  v  $2\%$ ,  $p=0.0478$ ). Atherosclerotic changes in forearm arteries in diabetic patients appear in 60% of hemodialysis patients and make it difficult to create an AVF only in 10% of diabetic patients, but it is possible to create a native AVF in 90% of diabetic patients, although this requires more procedures. In patients with diabetes, AVF in the wrist region should be preferred.

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