

TITLE: MICROBIOLOGICAL QUALITY OF WATER INTENDED FOR HEMODIALYSIS IN PUBLIC AND PRIVATE HOSPITALS OF THE GRANDE SÃO PAULO REGION

AUTHORS: PINTO, T.F; DIAS_FERREIRA, M.A., LAPORTA, M.Z.

INSTITUTIONS: FUNDAÇÃO SANTO ANDRÉ (AV. PRÍNCIPE DE GALES, 821, CEP: 09060650, SANTO ANDRÉ, SP); MICROAMBIENTAL LAB. COM. E SERV. EM ÁGUA LTDA. (R. JOSÉ FERRARI, 99, CEP:09530110, SÃO CAETANO DO SUL, SP)

Hemodialysis is a primary treatment for end-stage chronic renal patients. In this therapy, water is used to make the dialysis solution and to reuse the dialysers. The microbiological quality of the water for this purpose must be guaranteed through analysis of heterotrophic bacteria and bacterial endotoxins, strictly following the standards established by ANVISA in the Resolução da Diretoria Colegiada - RDC11 / 2014, since excessive levels of bacteria represent a risk to the health of patients, and may even lead them to death. The aim of this study was to investigate the microbiological quality of treated water for hemodialysis. For this, 385 water samples for hemodialysis, from reverse osmosis, after treatment, were analyzed. The water samples were collected in public and private hospitals in the region of the Grande São Paulo, from April to September 2017. Isolation of heterotrophic bacteria in culture and their enumeration was performed. The endotoxin concentration was estimated by the Turbidimetric Kinetic Method. The samples were placed on a microplate along with the LAL reagent (*Limulus Amebocyte Lysate*). After incubation, the reading was performed on a high resolution Elx808™ Absorbance Reader with the aid of the WinKQCL™ Endotoxin Detection and Analysis Software. Heterotrophic bacteria were detected above the maximum allowed value in 20.78% (80/385) of the analyzed samples. By the Turbidimetric Kinetic Method, endotoxins were detected above the maximum allowed value by the RDC 11/2014 in 25.45% (98/385) of the analyzed samples. The present study demonstrated that the microbiological quality of the treated water destined to hemodialysis presents unsatisfactory hygienic-sanitary conditions, revealing the potential health risk of the patients submitted to this treatment, since the existence of contamination in this water by bacteria and endotoxins at levels above of those recommended by the current legislation, can lead the patient to various complications, such as chills, fever, headache, nausea, hemolysis, liver failure, sepsis and even death. These results may support new research activities in the area of water quality control used in dialysis treatment, and may assist in actions related to the sanitation of the treatment system and of the equipment used in this system; including interventionist and preventive actions, in addition to allowing the criteria used by current legislation to be reviewed.

Keywords: treated water, hospital hemodialysis units, microbiological analysis for hemodialysis.

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