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Real-world treatment pattern of Renal Anemia in Hemodialysis patients: A Multicenter cohort study using Dialysis Net

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Objectives : DialysisNet system is developed for the health care of hemodialysis patients through applying American Society for Testing and Materials continuity of care record, based on metadata transformation. Here, we aimed to build treatment monitoring system for renal anemia using DialysisNet with BioEMR on real-time.

Methods : For research of hemodialysis information, we used the continuity of care record and ISO/IEC 11179 for compliance method. By using this method of CarePlatform with semantic interoperability, we could practice and research with DialysisNet system. The BioEMR is a system for maximization of clinical and bio information integration with sharing technology. By using DialysisNet and BioEMR, we did multicenter cohort study for renal anemia, included hemodialysis patients maintained to three experienced hospitals for a year. To know the practice pattern for treatment of renal anemia on real-time, we collected the information of hemoglobin and erythropoietin automatically with DialysisNet system. The hemoglobin variability was expressed as (standard deviation)/($\sqrt{n/(n-1)}$)

Results : We analyzed 190 participants' records (A hospital: 54, B hospital: 26, C hospital: 110), with common data elements for hemodialysis information including anemia associated attributes. The mean total number of patients was 198.3 ± 39.1 per month. The mean hemoglobin of all was 10.32 ± 0.07 g/dL, that of A hospital was 10.32 ± 0.13 g/dL, that of B hospital was 10.21 ± 0.13 g/dL and that of C hospital was 10.36 ± 0.20 g/dL. The mean hemoglobin variability of each center was that A hospital was 1.023 g/dL, that of B hospital was 1.028 g/dL and that of C hospital was 1.010 g/dL. The mean transferrin saturation of all was $29.19 \pm 5.94\%$, that of A hospital was $28.58 \pm$

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6.98%, that of B hospital was $27.15 \pm 5.98\%$ and that of C hospital was $32.10 \pm 4.25\%$. The use rate of erythropoietin of all was 80%, that of A hospital was 79%, that of B hospital was 85% and that of C hospital was 97%. The average usage of epoetin- β of all was 8,464 IU per week, that of A hospital was 5,262IU, that of B hospital was 13,316IU and that of C hospital was 8,889IU. The 28.9% of patients were using epokines an average of more than 9000 IU per week.

Conclusions : In this study, we easily approached detailed information on real-world anemia treatment pattern using tablet PC application. We expected that the management of renal anemia in dialysis patient become easier for health care provider as well as patients.

Keywords : Hemodialysis;anemia;EPO;lpad