

Healthcare Delivery and Education

EXPANDING CLINICAL CONSIDERATIONS FOR PATIENT TESTING AND CARE

Telemedicine Interventions for Treatment of Diabetes Mellitus in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis

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Diabetes mellitus (DM) is associated with significant morbidity, mortality and poor quality of life. It also has substantial social and financial implications because over 75% of patients with DM live in low- and middle-income countries (LMIC). In this context, it is often opined that diabetes care can be improved by employing telemedicine interventions. The present systematic review and meta-analysis aims to estimate the clinical effectiveness of telemedicine in improving biochemical and treatment adherence outcomes related to DM and provide the certainty of evidence for these interventions. Using a pretested search strategy, nine academic databases were searched from their inception to August 2019: Web of Science, PubMed, Medline, Global Health Library, Cochrane Central Register of Controlled Trials (CENTRAL), New York Academy of Medicine (NYAM) and Popline. We only included RCTs and cluster RCTs testing the effectiveness of tele-medicine-based interventions in type 1, 2 and gestational diabetes in LMIC. Risk of bias in the included RCTs was assessed using the Cochrane tool for assessment of risk of bias in randomized controlled trials. A series of meta-analyses for each individual outcome was run using random effects analyses. Certainty of evidence for these interventions was assessed using the GRADE guidelines. A total of 22 studies describing 23 interventions were included. We identified five modes of interventions delivered using telephone calls (n=6), SMS (n=5), telemetry (n=5) web-based systems (n=3) and smartphone apps (n=3). Major strategies included health record keeping, follow ups, reminders, psychoeducation, glucose monitoring, monitoring prompts, alerts and online consultations. Overall, a significant treatment effect was seen among outcomes of HbA1c (SMD=-0.30, 95% CI= -0.42 to -0.17, n=6548, I²= 80.21%) and fasting blood sugar levels (SMD=-0.17, 95% CI= -0.32 to -0.01, n=4709, I²=60.49%), self-efficacy (SMD= 1.94, 95% CI= 1.31 to 2.58, n=626, I²= 95.99) and treatment adherence (SMD= 1.16, 95% CI= 0.78 to 1.54, n=437, I²= 84.8%). A marginally significant effect was seen in improvement of knowledge regarding diabetes (SMD= 0.66, 95% CI= -0.006 to 1.33, n=1345, I²= 93.38%). No significant treatment effect was seen in outcomes of serum triglyceride levels (SMD= -0.02, 95% CI= -0.18 to 0.14, n= 1535, I²=2.98%), serum total cholesterol levels (SMD= -0.05, 95% CI= -0.20 to 0.09, n= 4862, I²=66.45%) and BMI (SMD= -0.03, 95% CI= -0.13 to 0.07, n= 5372, I²=41.78 %). Telephone calls and SMS based telemedicine

interventions yielded the highest treatment effects when compared with telemetry and smartphone apps-based services. Although telemedicine was found to be effective in improving several DM related outcomes, the certainty of evidence was downgraded to very low due to substantial heterogeneity, publication bias and risk of bias.

Bone and Mineral Metabolism

BONE AND MINERAL CASE REPORTS II

Peripheral Neurological Complications in Pregnancy- Is Idiopathic Transient Osteoporosis of Pregnancy Concerning?

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Idiopathic transient osteoporosis of pregnancy (ITOP) is a rare and under-reported condition that has affected healthy pregnancies. ITOP usually presents in the final trimester of a normal pregnancy. Radiographic studies detect drastic loss of bone mass, elevated rates of turnover in the bone, and edema in the affected portion.

We present a 26-year-old previously healthy woman, who was admitted at 39 weeks of gestation with severe left hip pain and inability to walk for one month. The pain was constant, progressive, involving left lower limb, and associated with numbness and weakness. Neurological exam revealed diminished power in the left hip (motor power was 2/5), and inability to stand and walk due to pain in the left hip. She was unable to stand by herself. Investigations revealed anemia, low vitamin B12, low vitamin D and magnesium. Bilateral hip MRI showed increased T2WI signal in the left femoral head consistent with idiopathic transient osteoporosis of the left hip (ITOP). DXA scan showed bone mass density (BMD) below expected for age. The patient had induced vaginal labor without complication. The left hip pain improved after delivery. She was treated conservatively with Calcium, Magnesium and vitamin D. The patient symptoms completely resolved in 3 months post-delivery. DXA scan and Hip MRI at 1 year interval showed normal BMD and complete resolution of previous bone marrow edema and changes seen in MRI hip. This case report serves to highlight the effect of pregnancy on bone mass during third trimester which may result in transient osteoporosis of pregnancy leading to weakness and gait disturbance. Clinical symptoms can be misdiagnosed as a peripheral neurological complications instead of bone metabolism changes of pregnancy.

Neuroendocrinology and Pituitary

PITUITARY TUMORS II

The Characteristic of Reproductive Disorders in Women with ACTH-Dependent Cushing Syndrome in the Republic of Uzbekistan (RUz) and Republic of Karakalpakstan (RKK)

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