et al and cardiac muscle. Mutations in the caveolin-3 gene (CAV3) lead to a broad spectrum of clinical phenotypes including limb-girdle muscular dystrophy, distal myopathy, rippling muscle disease, isolated hyperCKemia and cardiomyopathy. Clinical examination, EMG, muscle histochemical and immunocytochemical studies, mutation analysis. A 24-year-old man had myalgia, muscle stiffness and fatigue since the age of 17 years. He also had primary generalized epilepsy and diabetes. His muscle strength was normal. He had no clinical myotonia, rippling, percussion-induced rapid contraction or percussion-induced muscle mounding. His left calf was slightly enlarged. Multiple EMGs consistently showed prominent myotonic discharges in the gastrocnemius muscles and mild diffuse myopathic changes with a few fibrillations potentials. Cramp-fasciculation testing revealed no sign of motor nerve hyperexcitability. EKG and echocardiogram were normal. CK values fluctuated between normal and 538 U/L (nl < 336). Thyroid function, serum and CSF lactate and pyruvate were normal. Muscle biopsy of the deltoid showed a mild increase in internal nuclei and unremarkable sarcosomal immunoreactivity for caveolin-3; biopsy of the gastrocnemius showed also few necrotic fibers. Sequencing of CAV3 detected a heterozygous mutation p.V57M. Sequencing of CLCN1 and SCN4A detected no mutations. Previously performed testing for myotonic dystrophy type 1 and type 2 was normal. Karyotype analysis was normal. CAV3 analysis should be considered in patients with electrical myotonia of indeterminate etiology. p.V57M, previously reported in sporadic and familial hyperCKemia with no increased muscle irritability, can result in electrical myotonia.

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P2.29
Autosomal recessive limb girdle muscular dystrophy in Saudi Arabia
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Autosomal recessive limb-girdle muscular dystrophy (LGMD2) is a clinically and genetically heterogeneous disorder. So far 15 genes have been identified which are responsible for LGMD2 in Saudi Arabia, with high parental consanguinity rates; little is known about the genotype and phenotype of LGMD. So far we have studied seventeen consanguineous LGMD2 families. In this abstract we will present the clinical and genetic data on the completed families in our sample. This will consist of summary of fifteen families. Preliminary data showed three novel mutations in three different genes, with two being shared by more than one family. We suspect that novel mutations and mutations with founder effect may not be uncommon in such population. Targeting such mutations may be cost-effective in the future as a diagnostic service of patients from same ethnicity. We believe that this is the largest LGMD2 patient series from Saudi Arabia. This is an ongoing research project approved by our IRB and funded by King Abdul-Aziz City for science and technology (KACST) (grant #B-MED498-20).

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P2.30
Caveolinopathy: Further clinical heterogeneity
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Caveolin 3 is a small protein implicated in vesicular traffic and signal transduction. Mutations in its gene have been proved to provide a wide range of clinical manifestations. Here we describe two patients with a caveolinopathy and phenotypes not yet reported. A 55 year old man presented to our clinic complaining of proximal limb weakness. On exam he had an asymmetric scapula alata which had already been noticed when he was 18 years old. Atrophy of pectoralis major, triceps and brachioradialis were evident. Mild weakness for hip and knee flexion was also present. Muscle imaging showed a very asymmetric involvement of the posterior compartment of the thigh. CK was 240 U/L. He was first diagnosed with facioscapulohumeral muscular dystrophy, but diagnostic had to be reconsidered when the genetic study came out normal. A mutation was found in CAV3 gene, p.Ala95Thr. The second patient is a 17 year old boy, complaining of attacks of muscle weakness that happen during exercise. These attacks are sudden and so intense that he needs to stop doing exercise and lie down on the floor to recover. His neurological exam and muscle MR1 were normal, but CK was 1200 U/L. A periodic paralysis was suspected but screening of CACNA1S and SCN4A genes was normal. A mutation was found in CAV3 gene, p Thr78 Met. Our description widens the phenotype of caveolinopathies and emphasizes the need of a high suspicion for its diagnosis, as MRI is not always of help. It is of interest that the CAV3 mutations harboured by these two patients have already been described, associated to different clinical manifestations.

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P2.31
LGMD 1C: Difficulty in diagnosis
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A woman, born in 1962, with personal history of lombar pains and left sciatica in 2007 but without familial history, presented suddenly in 2007 pains in her left calf. CK were elevated (normal ×4). Myalgias with muscle stiffness progressively extended to both calves and then to the whole lower limbs, with spontaneous muscle contractions. First clinical examination found marked calf hypertrophy, impossible squatting, difficulties when walking on heels and on tiptoes because of pains, no proximal weakness but distal weakness of left lower limb (muscles of calves and peroneus). Tendon reflexes were normal. A 30° left Lasegue, an hypoaesthesia in the left leg were present. No percussion-induced muscular contractions was observed. MRI showed an hyper signal T1–T2 of internal gastrocnemius (fat infiltration). Spine MRI was normal. Cardiac and respiratory functions were normal. Muscle biopsy of left gastrocnemius showed dystrophic changes. Immunohistochemical reactions for all the studied antibodies were normal (dystrophin, sarcoglycans, dystroglycans, dysferlin, caveolin-3, laminins, desmin, myotilin, aBcrystallin, telethonin). Evolution is towards a marked worsening with need of cane in one year. Genetic analyses excluded a mutation in dysferlin gene and found an heterozygote mutation in CAV3 gene, in exon 2: c.216C>T. This patient presents as a late LGMD 1C, but the normal reactivity of caveolin-3 in the phenotype of caveolinopathies and emphasizes the need of a high suspicion for its diagnosis, as MRI is not always of help. It is of interest that the CAV3 mutations harboured by these two patients have already been described, associated to different clinical manifestations.

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