Short Communication

Integrative Pediatrics and Child Care Orthopedic Problems in Overweight and Obese Children

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According to the data published by Haslam and James, about 10% of the world populations aged up to 18 are overweight or obese [1]. In Europe, there are about 20% children with excessive body mass, 5% of whom suffer from obesity [2,3]. Childhood obesity is an ongoing epidemic in the United States [4,5]. The most recent data from the US indicate that 16.9% of children and adolescents are obese, defined as a body mass index (BMI) for age >95th percentile [6,7] and there is evidence that the prevalence of obesity among children will reach 30% by 2030 [8]. Childhood obesity is a risk factor for greater morbidity later in life, including diabetes, coronary artery disease and increased mortality [4,5,9,10].

Obese children are at an increased risk of developing orthopedic disorders of the lower-extremity. In early infancy a persistent genu varum may be seen as a sign of Blount disease. In the school ages flat feet and/or persistent valgus-knees has a higher incidence in obese children. Furthermore, overweight children have an augmentation risk of sustaining an injury compared with their normal-weight peers [11] and increased weight status has been associated with a 1.7 times increased fracture risk [12].

Obese children exhibit altered gait mechanics compared to healthy-weight children. The proportionality between hip loads and body-weight may be implicated in an obese child's increased risk of hip pain and pathology [13]. At the hip, pediatric obesity is positively associated with joint pain, a reduction in femoral neck ante version angle, and slipped capital femoral epiphysis (SCFE), the most common hip disorder affecting children [10,14,15]. Usually, SCFE occurs during adolescence (boys, 12 to 15 years of age, averaging about 13 years; and girls, 11 to 13 years of age, averaging about 11 years), a period of maximal skeletal growth. Chronic SCFE is the most frequent form of presentation. Typically an adolescent presents with a few months' history of vague groin pain, upper or lower thigh pain and a limp [16].

Sedentary lifestyle constitutes an additional factor not only in expanding the risk of overweight, but also when it comes to intensifying the prevalence of incorrect body posture in school children [17]. The most common postural deviations in obese children and adolescents were flat feet and valgus knees [17].

Stolzman et al. after a systematic review of the literature found that across all studies, pes planus prevalence among children with obesity ranged widely from 14 to 67%. Nearly all studies indicated increasing pes planus in children with increasing weight [18]. Frey et al studied foot complaints among 580 females and found that plantar fasciitis, tendonitis, and osteoarthritis were associated with being overweight [19].

Obese children who are showing signs of valgus knee should partake in weight management as early as possible in order to avoid progression to pathological deformity requiring surgical correction. Children who are obese and have suspected pathological malalignment (genu valgum) should undergo a thorough orthopedic assessment at the beginning of puberty [20]. In the case of definite malalignment, referral to a pediatric orthopedic specialist for further evaluation seems mandatory to allow for timely surgical intervention if necessary. Diagnosis prior to closure of the epiphyseal plate allows for the comparably simple intervention of epiphyseodesis as compared to osteotomy after further maturation of the bones [20].

The ever increasing epidemic of overweight and obesity, as well as the growing prevalence of incorrect body posture in children and adolescents, call for some actions which would lead to an increase in physical activity and draw attention to appropriate dietary habits. These activities constitute an important element of prevention of orthopedic disorders and can try to minimize, at same time, the other medical complication of obesity and the social/financial costs imposed by this problem [21,22]. Moreover, as it is common consensus that timely measures to prevent early-onset cardiovascular complications of childhood obesity are necessary, as well timely guided correction of angular deformity of the knee seems pivotal in order to avoid osteotomy or osteoarthritis later in life [20].

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