a significant mediator of cytokine (ie, interferon, tumor necrosis factor-α) production. Additionally, in previous studies unrelated to pSS, ETS1 was shown to regulate STAT4 expression at the transcription level. Thus, we hypothesized that ETS1 plays a significant role in regulating STAT4 transcription within SGECs of patients with pSS. Our objectives were as follows: (1) to determine whether downregulation of ETS1 mRNA by siRNA knockdown results in decreased mRNA and protein expression of STAT4 within the salivary gland cell line A253 and (2) to demonstrate the regulation of STAT4 mRNA expression by ETS1 siRNA knockdown in cultured SGECs from control patients with pSS and non-pSS sicca.

Methods: The salivary gland cell line, A253, was transfected with siRNA targeting ETS1 or a scrambled siRNA control. After 48 hours, mRNA and protein were isolated. cDNA synthesis was performed using 1 μg of mRNA. Expression of ETS1 and STAT4 mRNA was quantified by quantitative reverse transcription−polymerase chain reaction using the delta cycle threshold method to determine the relative fold changes normalized to glyceraldehyde 3-phosphate dehydrogenase in triplicate experiments. In addition, downregulation of STAT4 protein by ETS1 siRNA was determined by Western blot analysis and semiquantified by densitometry using cofilin as the loading control. SGECs were cultured from labial salivary gland biopsies of 2 patients with pSS (focus score [FS] $\geq$1) and 4 patients with non-pSS sicca (FS = 0, n = 2; 0 < FS < 1; n = 2) and transfected with siRNA targeting ETS1 or a scrambled siRNA control. After 48 hours, mRNA was isolated for cDNA synthesis and used to determine the mRNA expression of ETS1 and STAT4 as described above.

Results: In A253 cells, STAT4 mRNA expression was changed by −2.15-fold, on average, when treated with siRNA targeting ETS1. STAT4 protein expression was measured by Western blot analysis 48 hours post-ETS1 siRNA knockdown showing an average −1.25-fold change in A253 total cell lysate. SGECs cultured from patients with lymphocytic infiltration (ie, FS >0) showed a significantly higher expression of STAT4 (P = .0485) than patients with non-pSS sicca with FS = 0. However, we did not find a significant change in STAT4 mRNA expression (average, +1.14-fold) in cultured SGECs treated with siRNA targeting ETS1.

Conclusions: STAT4 is overexpressed by cultured SGECs in patients with pSS and those without pSS with focal lymphocytic infiltrates. STAT4 overexpression in SGECs of patients with pSS and those without pSS could be a result of inflammatory cytokine exposure by neighboring cells or effects of infiltrating lymphocyte exposure. Thus, our results suggest a separate regulatory mechanism of STAT4 in pSS bypassing ETS1 regulation, which might be due to pathogenic pathways involving other transcriptional regulation.

Case Report Award Presentations

Each year, quality case report abstracts submitted by students/residents/fellows are selected to receive case report awards. There are 5 award recipients this year:

OSTEONECROSIS OF JAW SECONDARY TO STEM CELL TRANSPLANT

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Background: Osteonecrosis of the jaw (ONJ) is necrosis of mandibular or maxillary bone, which may lead to bone exposure, regardless of the etiology. It is thought to be attributed to insufficient blood supply and altered bone turnover, resulting in a disrupted repair process and eventually leading to the collapse of bone in the setting of microfractures. We report what is, to the best of our knowledge, the first case of ONJ secondary to stem cell transplant (SCT).

Case Summary: A 69-year-old woman with a medical history significant for hypertension, osteopenia, and myelodysplastic syndrome, status post-haploidentical SCT in March 2018, presented for evaluation of asymptomatic exposed bone of the maxilla and mandible. She had no history of radiotherapy to her head and neck; however, she had undergone total body irradiation of 2 Gy in February 2018 as part of her conditioning regimen. She had no history of exposure to a bisphosphonate, receptor activator of nuclear factor-κB ligand inhibitor, antiangiogenic medicine, or corticosteroids. Her current medications included amlodipine, metoprolol, omeprazole, tacrolimus, sulfamethoxazole-trimethoprim, acyclovir, cholecalciferol, and folic acid. She did not have gingivitis or active periodontal disease. The patient had developed exposed necrotic bone sequestra in several areas of the buccal aspect of her maxillary and mandibular gingiva 2 months after her transplant in May 2018. The pathology report indicated fragments of necrotic bone with acute inflammation and bacterial overgrowth consistent with osteonecrosis.

Conclusions: There is evidence that the microenvironment of the marrow stromal system is severely and irreversibly damaged after SCT. The deficit in the quantity and quality of osteoblastic progenitors may compromise the ability to regenerate a normal osteogenic cell population, leading to an abnormality in bone remodeling/turnover. Although osteonecrosis of the appendicular skeleton is a common complication after SCT, there have been no reports of association with ONJ. Particularly interesting is the pattern of ONJ presentation in all the 4 quadrants in this patient.

OSTEONECROSIS OF MANDIBLE SECONDARY TO SICKLE CELL CRISIS

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Background: Sickle cell disease (SCD) is an autosomal recessive hemoglobinopathy causing amino acid substitution in the B-hemoglobin chain of erythrocytes. SCD affects 1 in 500 African American children. SCD is associated with multiorgan morbidity and significant reduction in life expectancy. Vaso-occlusive crisis associated with SCD is characterized by acute pain and local tissue hypoxia and necrosis. The extremities, back, and chest are frequently affected, and jaw involvement is very rare. To the best of our knowledge, only 3 cases of jaw osteonecrosis secondary to SCD have been reported in the English-language literature.

Case Summary: A 38-year-old African American man with a history of SCD and avascular necrosis of the hips presented to an emergency department with severe pain in his back, legs, and chest due to a vaso-occlusive episode precipitated by physical overexertion. A few days later, the patient complained of left jaw pain and paresthesia. Computed tomography (CT) of the head with intravenous (IV) contrast, maxillofacial CT with IV contrast, and the remainder of the neurologic examinations were unremarkable. The oral medicine service