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Chronic Pain in Sickle Cell Disease and Vitamin D Deficiency

Abdulaziz Khalid Althafar[1], Fahad Salman Al Harbi[2], Khalid Majid Al Khaldi[3], Mohammed Sami Al Haddad[4], Mahdi Youssef al Youssef[5], Muthana Abdullah al Sahlawi[6], Abdulrahman Ahmad Al Naim[7], Adel Nasser Al Bargi[8], Sayed Ibrahim Ali[9]

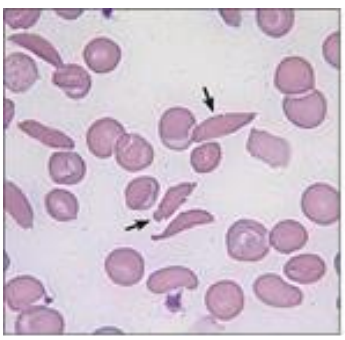
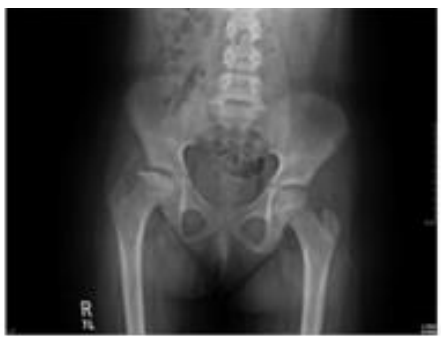
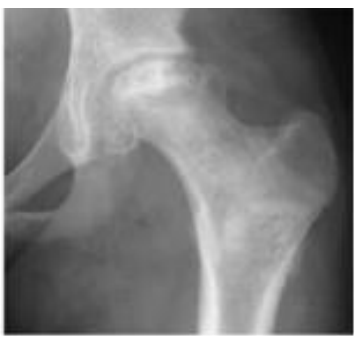
[1,2,3,4,5]Medical Student at College of Medicine, King Faisal University – Saudi Arabia
[6]Demonstrator, College of Medicine, King Faisal University – Saudi Arabia
[7,8,9]Assistant Professor, College of Medicine, King Faisal University – Saudi Arabia

Abstract: **Low bone density and chronic bone aches pain of unknown causes are common in sickle cell disease (SCD) adult patients. Chronic bone pains, osteoporosis, bone fractures, and muscle weakness can result fromvitamin D deficiency (VDD). Previous reports indicate a relation between VDD in SCD; however, the clinical correlates have not been well described. We therefore did a cross sectional survey to assess whether there is any correlation between Vitamin D deficiency and bone pain in patients with SCD.**
Results: Our results showed significant association between bone lesions and pain. However we could not demonstrate the correlation between VDD and bone pain in patients with sickle cell disease as the data was not available.
Conclusions: We therefore suggest Clinicians attending SCD patients with chronic musculoskeletal pain should be aware of and screen for markers of bone turnover to detect the extent of VDD.

Keywords: **sickle cell disease (SCD), chronic musculoskeletal pain.**

1. INTRODUCTION

Musculoskeletal pain is a common manifestation of SCD (1). Adults with SCD have a high incidence of chronic bone pain of unknown causes. The PiSCES (Pain in Sickle Cell Epidemiology Study) reported that daily pain occur in over 20% of adults with SCD, and the pain is present at least 50% of the time in over 50% of patients. This chronic pain is mostly underserved and not treated in the right way. This under-treatment leads loss of time and money for the patients and health providers.

Previous reports showed a high prevalence of vitamin D deficiency (VDD) in SCD patients. According to the season, the rates may reach as high as 65– 100% (2,3). Despite this evidence, Vitamin D deficiency remains both under-recognized and under-treated in patients with SCD.

Aim of the study:

1. To correlate the severity of Vitamin D deficiency and frequency of episodes of acute and chronic pain and musculoskeletal health in patients with sickle cell disease.

2. MATERIALS & METHODOLOGY

Subjects: Fifty four patients of sickle cell disease with severe bone pain

Study Locations: King Fahd Hospital, Hofuf.

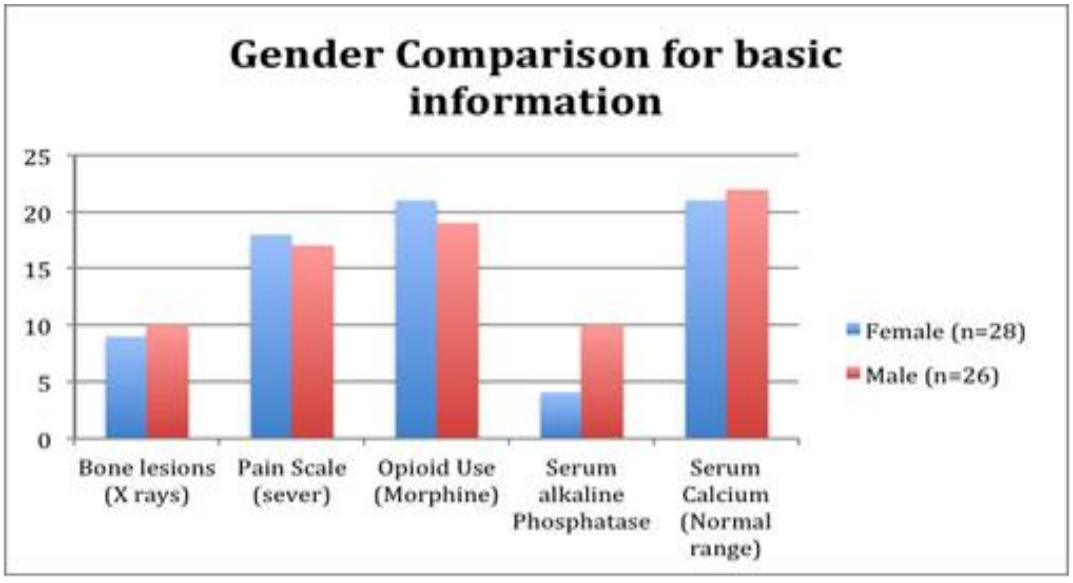
Eligibility: Inclusion Criteria: All patients (both male & female) with SCD of ages >18 years

Methodology of the study:

Lab parameters studied include, CBC, LFT, SAP, serum levels of 25(OH) D and parathormone (PTH) for vitamin D. Imaging studies to look for the presence of abnormal bones on X-rays- chest x-ray, X-ray pelvis, X-ray long bones.

3. RESULTS

Clinical event	Male (n=26)	Female (n=28)
Bone lesions (X rays)	10 (39%)	9 (32%)
Pain Scale (sever)	17 (65%)	18 (64%)
Opioid Use (Morphine)	19 (73%)	21 (75%)
Serum alkaline Phosphatase	10 (39%)	4 (15%)
Serum Calcium (Normal range)	22 (85%)	21 (86%)



Pain Severity:

		SEX				
	Male			Female		Total
Mild	09 (34.6%)		04	(14.3%)	13	(24.1%)
Severe	17 (65.4%)		24	(85.7%)	41	(75.7%)
Total	26 (100%)		28	(100%)	54	(100%)
					P value >0.05	

Opioid Use:

		SEX			
	Male		**Female**		**Total**
Yes	**19 (73.1%)**	**21**	**(75.0%)**	**40**	**(74.1%)**
No	**07 (26.9%)**	**07**	**(25.0%)**	**14**	**(25.9%)**
Total	**26 (100%)**	**28**	**(100%)**	**54**	**(100%)**

P value >0.05

Bone Lesions:

		SEX			
	Male		**Female**		**Total**
Yes	**10 (38.5%)**	**09**	**(32.1%)**	**19**	**(35.2%)**
No	**16(61.5%)**	**19**	**(67.9%)**	**35**	**(64.8%)**
Total	**26 (100%)**	**28**	**(100%)**	**54**	**(100%)**

P value >0.05

4. DISCUSSION

- The above mentioned tables shows no significant difference between males and females with regards to pain severity, use of opioids analgesics, incidence of bone lesions and markers of bone lesions.
- Though males had more mild pain (34.6%) as compared to females (24.1%), while moderate pain was more in females.
- However the severity reported is almost equal in both groups.
- Our preliminary data provides the basis for future prospective studies to investigate VDD if any and its correction improves musculoskeletal health and pain in patients with SCD.

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