

β-thalassemia is not known in Madinah region. Splenomegaly were found in 69%, hepatomegaly in 78%, and abnormal facial configuration in 54%. These findings indicate that our patients were receiving a sub-optimal BT regimen. Although the patients were maintain on hypertransfusion program but this could not be applied to all patients as many had poor compliance with the management protocol. Splenectomy was performed on 34% of the patient; the indications were increased transfusion requirements and massive splenomegaly in all patients, except one with splenic abscess. All our patients were over 5 years of age, and none of the patients received polyvalent pneumococcal and *Haemophilus influenzae* vaccines prior to splenectomy, instead all received intramuscular benzathine penicillin prophylaxis prior to surgery and oral penicillin prophylaxis afterwards and none of the patients developed post-splenectomy septicemia. Therefore, we recommend that splenectomy can be performed safely in children over 5 years of age with thalassemia and that pre and postoperative penicillin can be given prophylactically in the absence of the recommended vaccines.

Gallstones in thalassemia major were not reported previously, but one of our patient had gallstones, similar case was reported recently by Krishna et al.² Hepatitis C virus antibodies were detected in 49% of our patients. A lower prevalence was reported recently from the Eastern province of KSA.³ Approximately 60-80% of HCV infected children developed chronic hepatitis and almost 30% are prone to developed liver cirrhosis and hepatocellular carcinoma, therefore, treatment for chronic HCV infection is recommended to prevent further complication. The recent report demonstrates a high (72.2%) sustained biochemical and virological response rate to combination treatment with alpha interferon and Ribavirin despite infection with one type of HCV (1b) genotype.⁴ Elevated ALT were observed in 45% of those with HCV infection and 75% of them had raised serum ferritin (>2000 ng/ml), suggestive that blood iron overloading and hepatitis C infection contributed to liver damage in our thalassemic patients whose compliance with DF therapy was less than optimum, as 52% of our thalassemic patients had high serum ferritin. Iron overload had a negative influence on patients response to therapy and it has shown that thalassemic patients with HCV infection had little benefit from alpha interferon treatment. Two of our patients had hypoparathyroidism with the prevalence of 3% lower than what reported by Chern et al.⁵ All the patients had clinical symptoms of hypocalcemia and none of the patients developed hypothyroidism. Cardiac evaluation by x-ray, ECG, and echocardiogram were carried out routinely to our patients after 10 years of age. It revealed that 12% of investigated patients had cardiomyopathy with left ventricular dysfunction. Three of our patients (4.5%) died with cardiomyopathy at approximately 20 years of age.

In conclusion, despite the use of iron chelation with subcutaneous DF at earlier age but iron overload still the major problem in thalassemia major and the leading cause of death is cardiomyopathy. Till oral chelation agent becomes available, extensive education through frequent workshops for patients and parents to improve patients, compliance with DF is required. Recently, 2 workshops on compliance to treatment of thalassemia were held in KSA by Thalassemia International Federation, more of such workshops are required. Finally, we recommend bone marrow transplantation for children without organ impairment and further studies are required to identify β-thalassemia gene mutation in Madinah region.

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References

1. Al-Awamy BH. Thalassemia syndrome in Saudi Arabia meta-analysis of local studies. *Saudi Med J* 2000; 21: 8-17.
2. Krishna KK, Diwan AG, Mithrea DK. Cholelithiasis in thalassaemia major. *J Indian Med Assoc* 2002; 100: 258-259.
3. Al-Awamy BH, Al-Mulhim IA, Flemban SB, Al-Neem SA. Evaluation of current management of homozygous B-thalassaemia in Eastern Saudi Arabia. *Saudi Med J* 2002; 23: 1141-1142.
4. Li CK, Chan PK, Ling SC, Ha SY. Interferon and Ribavirin as frontline treatment for chronic hepatitis-C infection in thalassaemia major. *Br J Haematol* 2002; 117: 755-758.
5. Chern JP, Lin KH, Mitra DK. Hypoparathyroidism in transfusion-dependent patients with beta-thalassemia. *J Paediatr Hematol Oncol* 2002; 24: 291-293.

Improving foot examination of diabetics in primary care

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Dabetes mellitus is a common and serious problem in the Kingdom of Saudi Arabia (KSA) where prevalence of diabetes approximately 12% of the population as diabetic foot neglect leads to disability of the patients as 50% of foot amputations are related to diabetes.¹ Due to several factors (peripheral neuropathy, maculopathy and retinopathy) diabetics may not be aware of their feet injuries. Early detection would save patient's life in terms of quality and quantity. For this reason, diabetic foot examination has been considered as part of many protocols for diabetic care.² The aim of

Table 1 - Comparative outcome for the first and second periods.

Patient characteristics	Period 1 February - March 1999 N=282 n (%)	Period 2 July - August 1999 N=254 n (%)	Rate difference 95% Confidence interval	p value
Perform foot examination	22 (7.8)	134 (52.7)	-0.449 (0.382 - 0.515)	0.001

this study is to assess whether it is possible, by diabetic foot reminder, to improve foot examination of diabetics in primary health care centers (PHCC).

The data were collected in 2 periods with a 6 weeks duration where diabetic patients were identified from diabetic clinic register with 282 patients. Data was collected from the annual checklist (which attached to the file of diabetics) or from follow up sheets. If both (annual checklist and follow up sheet) were not including any document on foot examination, then this would be considered as "no foot examination done". The team (manager, nurses and general practitioners) were circulated the data from the first period (Period 1 February-March 1999) along with the key articles from a literature search on diabetic foot care.³ A practice meeting was then held with doctors, nurses, and manager of PHCC working in a small group to formulate an evidence-based standard of diabetic foot care. Figures from the literature were ranging from 45-70% of diabetic patients had their feet examined.⁴ Seventy percent was targeted by the team to be fulfilled in 4 months. An evidence-based diabetic foot examination reminder was designed to discuss the vascular, neurological, and musculoskeletal status of the foot. The data was collected by the same manner at the second period (Period 2 July-August 1999) to check the effect of the intervention tool (diabetic foot examination reminder) on the results. During Period 1, a total of 22 diabetic patients out of 282 (7.8%) had their feet examined in the last 12 months, while 260 (92.2%) without foot examination was carried out in the last 12 months. During the second period, a total of 47 diabetics had been registered, bringing a number of diabetics to 329 patients. Two hundred and fifty-four diabetics attended the clinic during the fourth months period (between Period 1 and 2). One hundred and thirty-four (52.7%) of those attended the clinic had foot examination, while 120 diabetics (47.2%) had no foot examination. During the Period 2, there had been a rise in achieving foot examination from 7.8-52.7% of diabetic patients (Table 1).

The main findings from the study was that the diabetic foot examination was almost neglected in Period 1, which showed a considerable defect in quality of care for

diabetic patients and deficiency in applying a good practice in PHCC. This poor quality of diabetic foot care is not rare in primary health care settings. However, foot examinations were performed at least in 85% of diabetic patients in other good practiced primary care settings.⁵ Fifty-two percent of our diabetics had foot examination over 4 months, which was a good achievement. The study showed that there was a dramatic improvement of performing foot examination after using the reminder over 4 months. Further improvement might be expected over applying the reminder for a year or more. However, we feel that one of the main reasons for the success in implementing the diabetic foot examination reminder is that we employed a multidisciplinary approach.

In conclusion, using a multidisciplinary diabetic foot examination reminder, it is possible to increase the performing of diabetic foot examination and quality of diabetic foot care thereafter.

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References

- Meshikhes AN, Al-Dhurai S, Al-Rasheed M, Al-Askar E, Al-Kassab A. Diabetic foot: presentation and surgical management at Dammam Central Hospital. *Saudi Med J* 1998; 19: 45-49.
- Lavery LA, Armstrong DG, Vela SA, Quebedeaux TL, Fleischli JG. Practical criteria for screening patients at high risk for diabetic foot ulceration. *Arch Intern Med* 1998; 158: 157-162.
- Mayfield JA, Reiber Ge, Sanders LJ, Janisse D, Pogach LM. Preventive foot care in people with diabetes. *Diabetes Care* 1998; 21: 2161-2177.
- Wyile RJ, Walker EA, Shamoan H, Engel S, Basch C, Zybert P. Assessment of documented foot examination for patients with diabetes in inner-city primary care clinics. *Arch Fam Med* 1995; 4: 46-50.
- Jensen T, Musaeus L, Molsing B, Lyholm B, Mandrup T. Process measures and outcome research as tools for future improvement of diabetes treatment quality. *Diabetes Res Clin Pract* 2002; 56: 207-211.