STUDY OF CARDIAC AFFECTION IN END STAGE-RENAL FAILURE BY ECHOCARDIOGRAPHY.

Thesis Submitted for Partial Fullfilement of M.S. Degree in

Cardiology

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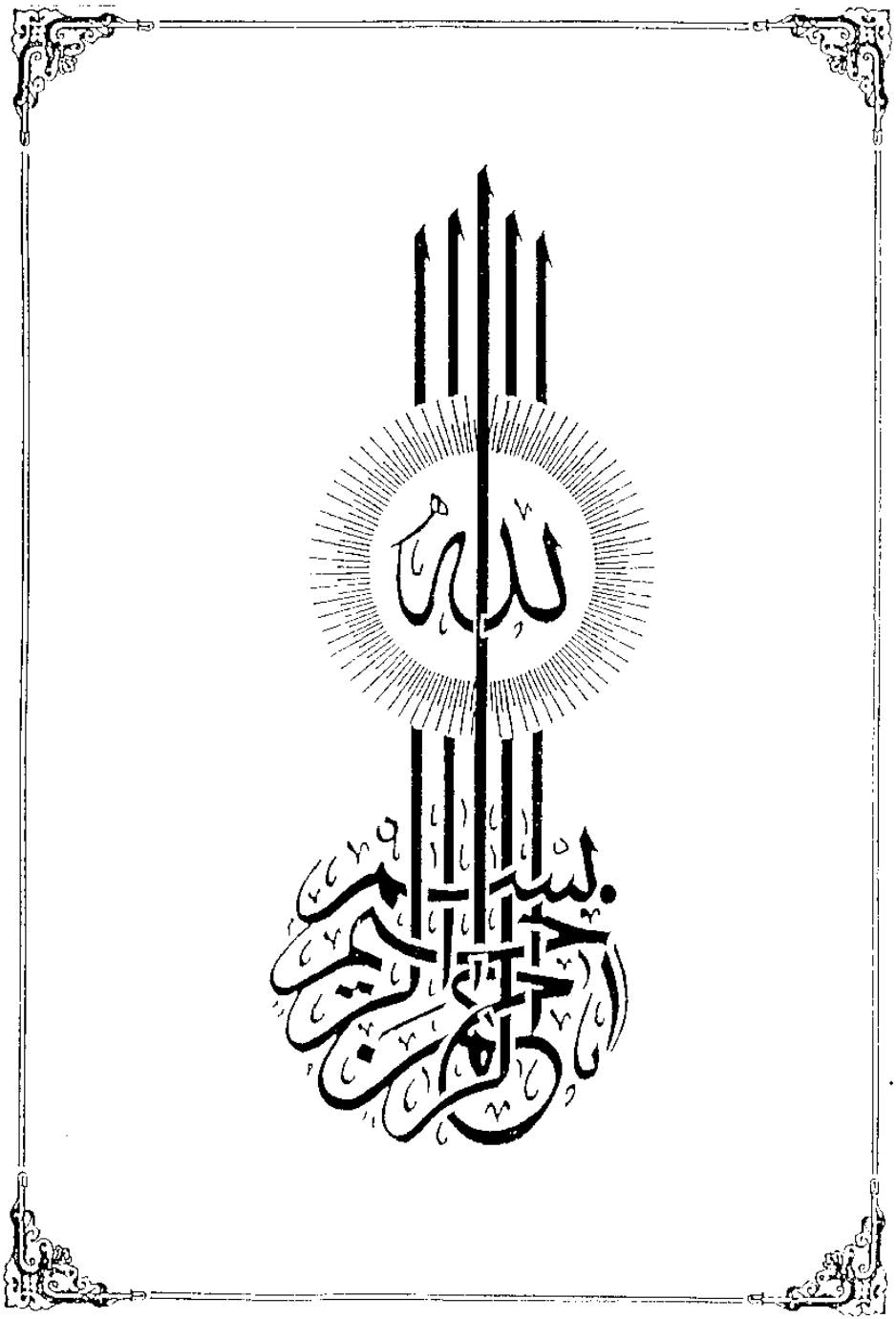
بسم الله القوى



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REVIEW OF LITERATURE

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CHRONIC RENAL FAILURE

CHRONIC RENAL FAILURE

Definitions

Acute renal failure is a syndrome characterized by a relatively rapid decline in renal function that leads to the accumulation of water, crystalloid solutes, and nitrogenous metabolites in the body ***(Grantham, 1988),*** while chronic renal failure is a progressive and generally irreversible decline in glomerular filtration rate ***(Kokko, 1988).*** On the other hand, uremia is a serious toxic condition that occurs as a terminal stage in both acute and chronic renal failure, it begins when renal function approaches 5 percent of normal. Uremia is often end by coma followed shortly by death ***(Schreiner, 1989).***

Stages of Progressive Renal Failure

The stages, in order of progression, are 1-reduced renal reserve, 2-renal insufficiency, 3-renal failure, 4-uremic syndrome, and 5-endstage renal disease (ESRD) ***(Zollo, 1991).***

Patients with normal renal function have nephron mass in excess of that necessary to maintain a normal glomerular filtration rate, therefore, with progressive loss of renal mass, renal reserve is lost initially which is not reflected by a rise of blood urea nitrogen (BUN), and creatinine or in a disturbance of

homeostasis. On the other hand, if the progression continues, this stage is followed by renal insufficiency, which is associated with mild elevation of BUN, and creatinine and very mild symptoms, including nocturia and easy fatigability. However, with further progression, renal failure ensues, this stage is characterized by apparent abnormalities of renal excretory function, including disturbances in water, electrolyte, and acid-base metabolism. Continued worsening of renal function is followed by the uremic syndrome, which includes multiple dysfunction of major organ systems in addition to the abnormalities of excretory function described. Finally, ESRD appears, at which time the remaining renal function is unable to sustain normal body function, therefore renal replacement therapy is required at this time ***(Luke, 1988).***

Etiology of Chronic Renal Failure

Chronic renal failure may be developed by various number of diseases including, chronic glomerulonephritis, chronic pyelonephritis, nephrosclerosis, diabetic glomerulosclerosis, traumatic loss of kidney tissues, congenital polycystic kidney, or hydronephrosis resulting from obstructive lesions, stones, tumors, strictures, or prostatic enlargement. Collagen diseases as lupus erythematosus, polyarteritis nodosa, anaphylactoid

purpura, and scleroderma, are also contributing in development of chronic renal failure ***(Luke, 1988; Guyton, 1991).***

Replacement Therapy of End Stage Renal Disease

End-stage renal disease requires one of the various forms of renal replacement therapy; chronic hemodialysis, peritoneal dialysis, or kidney transplantation from alive related or cadaveric donor ***(Luke, 1988).***

Dialytic therapy should be started when conservative management fails to maintain the patient in reasonable comfort. Usually dialysis will be required if a creatinine clearance below 5ml/minute, a serum creatinine more than 10mg/dL, blood urea more than 200mg/dL, a serum potassium more than 7mEq/L or serum bicarbonate less than 12mEq/L, ***(Gotch and Keen, 1991).*** However, biochemical abnormalities as indicators for starting dialysis are pointers rather than decisive criteria ***(Bonomini, 1989)***. Broadly speaking, the development of uremic encephalopathy, neuropathy, pericarditis, and bleeding diathesis are indications to start dialysis immediately. On the other hand, dialysis can be used in non uremic patients with fluid overload ***(Weidmann,1989),*** congestive heart failure ***(Agostoni, et al, 1993),*** hyperkalemia, metabolic acidosis, and hypertension uncontrolled by conservative measures ***(Zollo, 1991).***