CHAPTER II

REVIEW OF RELATED LITERATURES

Nocturnal enuresis is a very common problem both in pediatric and child psychiatric field, without definite etiologies (sleep disturbance, developmental delay, nocturnal urine production, functional bladder capacity, etc). We also have many treatment modalities such as traditional method , alarm conditioning and medications. There have been many researches studying about enuresis treatments especially alarm conditioning and medications :

Turner et al[13] (1970) studied the enuresis treatment with pad and bell and found that premature termination was rather high which due to a failure to understand or to follow the instructions and failure to wake the child up.

Kolvin et al[15] (1972) studied the enuresis treatment with alarm and found that one of the inconveniences of pad and bell was that it took weeks before cure was obtained . A cure was usually reached during the second month of treatment.

Essen and Peckham[16] (1976) stated that the likelihood of becoming dry was greater for girls than for boys and later bed-wetting was associated with behavior difficulties.

Doley D.M.[17] (review ,1977) reported that a relapse of enuresis mostly occurred within 6 months after treatment end.

Berg et al[18] (1982) studied the response of bed-wetting in 54 children with enuresis to alarm treatment and found that the initial response rate was 73%.

Wagner et al[19] (1982) studied a controlled comparison of two treatments for nocturnal enuresis i.e., alarm and Imipramine and indicated a significantly more effective outcome for the conditioning approach.

Dische et al[20] (1983) studied to assess the factors that might affect the outcome of enuresis treatment with alarm and found that family difficulties emerged as the most

important predictor for outcome of treatment and one of characteristics associated with delayed response to treatment by night alarm was failure to wake the child up.

Cracco et al[21] (1984), the Italian authors studied alarm conditioning therapy in 180 enuretic children (140 cases of primary enuresis , 40 cases of secondary enuresis) and found that the remission rate of primary enuresis was 85.71% , relapse after 6 months was 11.42% and the remission rate of secondary enuresis was 75% , relapse after 6 months was 10%.

Houts et al[22] (1984) studied the outcome of alarm treatment compared to medication and stated that pad and bell was accepted as an effective treatment , did no harm , more remission rate and less relapse rate than medication.

Bartolozzi et al[23] (1985) studied the 130 enuretic children aged 6-15 years treated with alarm conditioning and found that its remission rate was 83% , about 10% of relapse and most children become dry within 12 weeks.

Foxman et al[10] (1986) asked the 1,753 children aged 5 to13 years about the presence and frequency of enuresis , perceived impact and physician prescribed treatments , and reported that more than half of children were distressed by their enuresis , and two thirds of parents expressed concern. Thirty-eight percent of bed-wetters had seen a physician about their conditions. More than one-third of these children had been treated with a drug. But the most commonly recommended regimen in the literature , the bed alarm , was prescribed to only 3% of bed-wetting children who saw a physician.

Fournier et al[11] (1987) stated that remission rate of traditional method was not well established , it had only small initial reduction in wetting frequency and its effect was short-lived.

Yachiku S et al[24] (1989) , the Japanese authors studied alarm treatment in 50 enuretic children and found that its completed effectiveness was 56% , satisfactory effectiveness 24% and there were relapse in 5 patients who were all finally cured. They concluded that alarm treatment was significantly more effective than medication and assessed as the most successful treatment available at the present time.

There were many researches studying the success rate of pad and bell :

Geffken et al[25] (1986) , Willes S[26] (1986) , Stromgren et al[27] (1990) , Devlin et al[28] (1990) , Thomsen et al[29] (1991) , Bartolozzi et al[30] (Italian , 1991) , Van Londen et al[31] (1993) , Bonde et al[32] (1994) , Rappaport L[33] (review , 1997) , all of them reported the success rate of pad and bell varied from 60 to 100% with most studies reported the remission rate about 75-80% depending on populations studied , criteria for diagnosis , definition of outcome , research design and methodology duration of treatment , etc.

Butler et al[34] (1990 b) , Fielding[35] (1985) , Doleys[17] (1977) , Young and Morgan[36] (1973) , Turner[37] (1974) , reported the relapse rate of pad and bell were not consistenly replicated across studies and varied from 10 to 30% (depending on populations studied , definition of relapse , research design and methodology and duration for following - up).

There were many literatures that studied the outcomes of alarm conditioning compared with other modalities of treatment especially medications : Stromgren et al[27] (1990), Thomsen P.H. [29] (1990),Cochat et al[38] (French,1991),Steele B.T. [39] (review,1993,Mc Master University), Moffatt et al[40] (review, 1993), Ankjaer-Jensen et al[41] (Danish,1994),Ng K.H. [42] (Singapore,1994), Kreitz et al[43] (1994),Monda et al[44] (1995),Alon U.S.[45](1995), Schmitt B.D. [46] (review, 1997), and Gimpel et al[47] (review, 1998). These studies reported that alarm treatment by pad and bell was more effective , less relapse rate , less complications or adverse effects , less cost , had more safety and long term efficacy than other current treatment modalities (medication with Imipramine or DDAVP) and suggested to use pad and bell as the first choice of treatment for enuresis.

Kaewpornsawan T. [14] (1994) studied enuretic patients who were referred for treatment at Siriraj hospital and found that 83% of patients never received any treatment or only traditional method , 17% were prescribed medications and none ever used pad and bell.

Hansen et al[48] (1997) and Oreddsson et al[49] (1998) studied the effect of alarm treatment over a period of 6 weeks and found that the use of an alarm increased nocturnal bladder capacity.

No articles (reviewed from 1965-1998) compared between the alarm conditioning (pad and bell) with the traditional method.